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# AMERICAN STANDARDS ASSOCIATION

## ASA MEMBER BODIES

Am. Gas Association  
Am. Home Economics Assn.  
Am. Institute of Bolt, Nut & Rivet Mfrs.  
Am. Institute of Elec. Engineers  
Am. Iron & Steel Institute  
Am. Petroleum Institute  
Am. Soc. of Civil Engineers  
Am. Soc. of Mechanical Engineers  
Am. Soc. for Testing Materials  
Am. Transit Association  
Assn. of American Railroads  
Assn. of Am. Steel Manufacturers  
Technical Committees  
Assn. of Gas Appliance & Equipment Mfrs.  
Automobile Mfrs. Assn.  
Cast Iron Pipe Research Assn.

Electric Light and Power Group:  
Assn. of Edison Illuminating Companies  
Edison Electric Institute  
Federal Housing Administration

Fire Protection Group:  
Associated Factory Mutual Fire Insurance Companies  
Nat. Bd. of Fire Underwriters

Nat. Fire Protection Assn.  
Underwriters' Laboratories  
Institute of Radio Engineers

Light Metals Group:  
Aluminum Company of America  
Mfrs. Standardization Soc. of the Valve and Fittings Industry  
Nat. Assn. of Master Plumbers  
Nat. Assn. of Motor Bus Operators  
Nat. Assn. of Mutual Casualty Companies  
Nat. Bureau of Casualty and Surety Underwriters  
Nat. Electrical Mfrs. Assn.  
Nat. Machine Tool Builders' Assn.  
Nat. Retail Dry Goods Assn.  
Nat. Safety Council  
The Panama Canal  
Soc. of Automotive Engineers

Telephone Group:  
Bell Telephone System  
U. S. Independent Telephone Assn.  
U. S. Department of Agriculture  
U. S. Department of Commerce  
U. S. Department of Interior  
U. S. Department of Labor  
U. S. Govt. Printing Office  
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U. S. War Department

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Am. Council of Commercial Labs.  
Am. Gear Mfrs. Association  
Am. Hospital Association  
Am. Soc. of Heating & Ventilating Engineers  
Am. Soc. of Refrigerating Engrs.  
Am. Soc. of Sanitary Engineering  
Am. Trucking Assns., Inc.  
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Grinding Wheel Mfrs. Association  
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Illum. Engineering Society  
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# 1937 Emphasizes Growth in ASA Program

*Annual Reports Show Progress*

## Expansion Features Plans For Future Activity

THE past year has been an exceedingly interesting and important one to our Association. Many new projects have come to us in line with the work that we have been accustomed to do in the past. Requests from industry for the Association to extend its services have created new problems. The record of the Association in the past year has been one of growth—in membership, in work, in the methods by which the work is accomplished.

In the last 12 months 16 new national groups have affiliated—marking the largest increase in membership since the Association was organized. One of these, the National Retail Dry Goods Association, with its 5,800 stores, brings to us an industry that has never before been represented in our work. There are half a dozen new members in the building field and two in the automotive field. This growth in membership shows an increased interest on the part of industry in standardization as well as an appreciation of the integrity and methods of the Association.

### **Increase in Work**

New groups have brought their standardization problems to the Association with a consequent increase in the work. Organization of both the Building Code Correlating Committee and the Advisory Committee on Consumer Goods was complete before the date of the last annual meet-

ing, but significant developments in both of these fields have come within the current year.

Public safety demands sound construction, prevention of overloading, minimizing fire hazards, adequate exits in case of emergency, light and ventilation, and proper plumbing in buildings. High winds, fire, and earthquake have taken their toll of poor construction, and municipal officials are increasingly focusing attention on the need for building codes. As a national clearing house for this work, the American Standards Association has an opportunity to perform a real service in harmonizing the many conflicting building regulations now in use.

The work of the Association in this field has an economic significance. Housing and construction form one of the most important problems before the country today. By removing unduly restrictive regulations opening the way for new materials and new methods, the building code pro-

**Annual Report**

by

**Dana D. Barnum**

*President, American  
Standards Association*

gram should add materially to the solution of this great problem.

The consumer goods program has also brought new opportunities and responsibilities to the Association within the year. In the development of standards for things that are bought and sold across the counter, we have the problem of working with three diverse groups—manufacturer, retailer, and shopper. In many respects these groups do not even speak the same language. The shopper knows what she wants, but she can not say it in terms of the thread count and tensile strength that are understood by the manufacturer. In this work we also encounter an entirely new problem—keeping these standards clear of the style features of merchandise.

Can the same practical engineering methods that have for the last nineteen years proved effective in the development of mechanical standards and codes be applied to wearing apparel and bedding and the like? Five of the chief national consumer organizations and many retail executives believe that they can. In this belief they are utilizing the American Standards Association to develop a program of standards in the consumer field that in a few years may become one of our major operations.

This new work demands the same integrity and skill in handling intergroup problems that the technical committees have used in building our standards in the mechanical, electrical and other fields.

### ***Objectives of the ASA***

The Association was organized to act as a clearing house for the many standardization activities of trade associations, technical societies, and government bureaus in this country; and to serve as a channel of cooperation in international work. Its purpose is to make available to all manufacturers, large and small, the economies of mass production; to improve processes and products; to broaden markets, thereby aiding in distribution and purchase.

As a living, integrating force, the Association has grown with the demands made upon it by industry and by government. Several years ago the volume of the work had increased to a point where it seemed advisable to departmentalize as many of the separate projects as possible under correlating committees in the electrical, mining, mechanical, safety, and consumer goods field. In some of these fields there are 50 or more existing standards, with revisions and new projects coming up for consideration constantly.

An especially important administrative job completed within the year has been revision of the procedure under which the Association had worked since 1928. These methods of developing standards have been the cornerstone of the ASA.

They are based on the fundamental principle that all groups affected by a standard have an inherent right to representation on the body dealing with the subject-matter of the standard. For flexibility several different methods are provided by which standards and revisions of standards may come before the Association for approval. All are based on one fundamental principle—the assent, affirmatively expressed, of those groups having a substantial interest in the standard.

The present revision was carried through only after months of serious study and consideration on the part of a joint committee of the Board and the Standards Council.

### ***Government Regulations***

I believe that the most important accomplishment of the Association to date is in the field of industry-government relations. A mutual confidence and understanding has grown out of the many undertakings in which industry and government have labored together. This is true of state and federal governments, and now increasingly of the cities.

Eight departments of the Federal government hold membership in the Association. Forty government bureaus are participating in the committee work, plus most of the important associations of state and municipal administrative officials.

For example, through an intimate working relationship with the National Bureau of Standards the facilities of government laboratories and the services of its technical experts are constantly available to ASA committees. Twenty-five of the 34 states having industrial regulations utilize American Standard safety codes; the same condition is developing with state and municipal authorities in the building code work; while last January the fifth important standard in the field of traffic safety was approved.

After forty years' experience in utility work, I have come to regard the work of this Association on standards which involve governmental regulation as an outstanding achievement in the field of the relations between industry and government. There are innumerable problems which industry can readily solve if it will but take the initiative and follow the same fair methods that it has taken in ASA safety code work. This is an opportunity and a challenge.

### ***International Cooperation***

Perhaps not all here today know that there are organizations like the American Standards Association in each of 26 countries and that they are banded together in the International Standards Association of which the American Standards Association is a member. Through this Association world-wide uniformity has been attained in such



important industrial matters as specifications for 16 millimeter sound film and sizes for ball bearings. Some of the active undertakings today have to do with automobile parts, petroleum products, and systems of machine fits. Cooperation in international work in the electrical field is carried on through the International Electrotechnical Commission.

This international phase of ASA work affords the Association an opportunity of rendering an unusual service to company members. The ASA has in its library files the standards and specifications of the 26 foreign standardizing bodies with which it maintains cooperative relations. All of this material is available to company members. This is of value in promoting the export business of company members.

We are operating on a budget—a balanced budget—of \$104,500. One fourth of this is derived from the dues of member associations. The other three fourths comes direct from industry through company memberships. This differs from the financing of the foreign standardizing bodies, most of which receive government subsidies.

Last year the Association suffered a serious decrease in income—a heavy blow in view of the important new work being undertaken at the time; and I believe that it redounds highly to the credit of the organization that it has been able to

weather this financial crisis. This has only been possible through the faithful work of the Finance Committee, the Board and Standards Council members in carrying on a financial campaign that has to date brought in \$15,000. This is encouraging, but it is not adequate. Your Board is fully alive to the seriousness of the situation, and will take all necessary steps to increase our income.

The work has increased to a degree where added facilities are an absolute necessity. In the present situation much staff time and energy sorely needed for the technical work has to be spent upon financial matters. The work must be speeded up. For example, in the field of occupational disease prevention, the development of adequate safety standards has been brought to a virtual standstill. Yet lack of such standards are costing industry a thousand fold what it would take to finance the whole program.

On the occasion of the annual meeting a year ago, Mr. Cortelyou said that he knew of hardly another organization that had worked within so limited a budget as the ASA and accomplished such results. That is a record to be proud of.

As to the future, I have good reason to believe that in another year the Association will be in such a financial position that it will be able to carry forward this work with despatch and fairness.

## 28 New Standards, 8 New Committees, 31 Revisions, Is 1937 Record

**D**URING the past year the Standards Council has faithfully performed its duties in carrying out that part of the ASA program which deals with the development and approval of standards—all as provided in the Constitution of the Association. The details of its activities are available to all members of the Association in the minutes of the Council's meetings.

During the year three meetings of the Council have been held in addition to the Annual Meeting a year ago. A number of new projects have been authorized, and 59 standards have been approved—some of which are of widespread importance while others concern only a single industry.

<sup>1</sup>Vice-president, Electrical Testing Laboratories, New York.

### *Annual Report*

by

**F. M. Farmer<sup>1</sup>**

*Chairman, Standards Council  
American Standards Association*

The Council has been operating during the year under the new scheme of organization which was completed just prior to the last annual meeting of the Association. Council activities are now carried on under correlating or industry committees in the electrical, mining, mechanical, build-

ing, safety, and consumer goods fields. Two of these committees, however, the Advisory Committee on Ultimate Consumer Goods and the Mechanical Standards Committee, have only really begun to function during the past year. As the scope of the Association's activities continue to expand, it will no doubt be necessary to further departmentalize the work of the Council. Consideration is already being given to the organization of a correlating committee to supervise our increasingly important work in the highway traffic field.

At the present time there are a total of 140 projects on the Association's books divided among the various fields listed above. This means there are approximately 140 sectional committees and many active subcommittees working under the supervision of the Council.

Not all of these projects are active. In certain cases, the actual development of the standard must await the completion of a research program. In a few cases lack of interest on the part of the section of industry concerned is holding up the development of standards. This condition is not a satisfactory one and where lack of interest is definitely evident or a consensus cannot be established within a reasonable time, the project should be dropped from the books. There are too many

important demands on the Association's resources and none of the staff energy should be wasted on inactive projects. Fortunately the revised procedure (referred to later in this report) specifically provides for a periodic review of projects and the elimination of those which give little promise of definite accomplishment.

### ***New Projects***

Of the many requests from industrial and consumer groups for approval of standards and initiation of new projects which have been referred to the Council during the year, it has acted favorably upon twenty and authorized the setting up of eight new sectional committees.

Conspicuous among these new projects are two launched under the sponsorship of the Advisory Committee on Consumer Goods—the standardization of sizes of children's garments, and the standardization of terms used in retailing; i.e., compilation of a dictionary for the use of retailers, manufacturers, and advertisers in describing merchandise.

The standardization of the sizes of children's garments and of patterns for such garments, a project in which pattern manufacturers, garment manufacturers, retailers, and particularly con-

### ***New Standards Approved Since Last Annual Meeting***

Power-Operated Radio Receiving Appliances (C65-1936) *American Standard*  
Weather-Resistant (Weatherproof) Wire and Cable—URC Type (C8.18-1936) *American Tentative Standard*  
Specifications for Uncoated Wrought-Iron Sheets (G23-1937) *American Standard*  
Standard for Railroad Highway Grade Crossing Protection (D8-1937) *American Standard*  
Specifications for Bronze Trolley Wire (H22.1-1937) *American Standard*  
Specifications for Copper Trolley Wire (H22.2-1937) *American Standard*  
Large Rivets (B18.4-1937) *American Standard*  
Machine Tapers, Self-Holding Taper Series (B5.10-1937) *American Standard*  
Approval Requirements for Gas Hair Dryers (Z21.25-1937) *American Standard*  
Standard Method of Compiling Industrial Injury Rates (Z21.26-1937) *American Standard*  
Attachable Gas Water Heating Units Without Water-Carrying Parts (Z21.26-1937) *American Standard*  
Specifications for Zinc-Coated (Galvanized) Wrought Iron Sheets (G8.8-1937) *American Standard*  
Specifications for Zinc Oxide (K22-1937) *American Standard*  
Specifications for Basic Carbonate White Lead (K23-1937) *American Standard*

Specifications for Red Lead (K24-1937) *American Standard*  
Specifications for Mineral Iron Oxide (K25-1937) *American Standard*  
Specifications for Lampblack (K26-1937) *American Standard*  
Specifications for Chrome Yellow (K27-1937) *American Standard*  
Specifications for Reduced Chrome Green (K28-1937) *American Standard*  
Specifications for Prussian Blue (K29-1937) *American Standard*  
Specifications for Ultramarine Blue (K30-1937) *American Standard*  
Specifications for Commercial Para Red (K31-1937) *American Standard*  
Recommended Practice for the Inspection of Elevators (Elevator Inspectors' Handbook) (A17.2-1937) *American Rec. Practice*  
Specifications for Spirits of Turpentine (K32-1937) *American Standard*  
Methods of Sampling and Testing Turpentine (K33-1937) *American Standard*  
Specifications for Varnished Cloth Insulation for Lead-Covered or Braid-Covered Power Cables (C18.13-1937) *American Tent. Standard*  
Standards for Relays Associated with Power Switchgear (C37.1-1937) *American Standard*  
Standard for Automatic Stations (C37.2-1937) *American Standard*

**Revisions to bring 31 other standards up-to-date were approved during the year.**

sumer interests, are involved, will be based on a study of actual body measurements of children taken at random from eight selected regions of the United States. This survey is now being carried on by the U. S. Bureau of Home Economics and nine cooperating state colleges and universities.

The dictionary of terms in the retailing field will be similar to one which has enjoyed a marked success in Great Britain and will give precise definitions of various types of merchandise, their construction, finish, and performance.

This Committee has also organized subcommittees to investigate and suggest a standardization program for hosiery, bedding and upholstery, electric refrigerators, shoes, shrinkage, sheets, and color permanence.

The Building Code Correlating Committee has developed and published a recommended arrangement of chapters and topics for building codes which will serve as a working guide for its technical committees and as a suggested guide to municipalities in the orderly formulation of local codes. Three new projects—Administrative Requirements for Building Codes, Requirements for Excavations and Foundations, and Requirements for Iron and Steel—have been authorized during the year, making a total of eight active projects under this Committee.

Another new project of exceptional importance initiated during the year is the development of Principles Underlying Valid Certification and Labeling of Commodities. Reliable "certifications" and "approvals" in which the public can have confidence are of very real potential value to the responsible producer and distributor, but the loose, misleading, and irresponsible use of these terms has brought them into disrepute. It is hoped that development through the American Standards Association of a standard practice with respect to approval systems will aid in eliminating these irresponsible endorsements and will restore public confidence in the terms "certification" and "approval."

An important project in the mechanical field which has been initiated during the year is the standardization of the heights of loading platforms at freight terminals which it is anticipated will eliminate a material expense in the handling of freight due to variations in these heights which now exist.

### **Completed Projects**

Among the more significant projects completed during the year are the following:

The Safety Code for Power Presses, one of the first and most important standards in the field of industrial safety, has been revised.

### **Eight New Committees Authorized by ASA**

**New committees, authorized during the past year, will work on standards for:**

- Principles underlying valid certification and labeling of commodities
- Requirements for excavations and foundations
- Requirements for iron and steel
- Administrative requirements for building codes
- Sizes of children's garments
- Terms used in retailing
- Electrical installations on shipboard
- Standardization of heights of loading platforms at freight terminals

**Correlating committees supervising the Association's work in the electrical, mechanical, mining, building, safety, and consumer goods fields help to prevent duplication of effort and conflict in standards provisions. A correlating committee on highway safety is now being considered.**

Following several years of trial and criticism, the Standard for Railway Grade Crossing Protection of the Association of American Railroads has received final approval as an American Standard. This makes the fifth important standard in the field of traffic safety to be approved by the Association.

A 1937 revision of the Elevator Safety Code incorporating many new provisions for safe practices in elevator design and operation has been completed. These changes have been made as the result of several years of extensive research carried on at the National Bureau of Standards for the elevator industry. The code, which is being used widely by state and municipal authorities, serves as an example of the influence of the ASA safety program on industrial regulations.

The revised American Standard for Compiling Industrial Injury Rates has also been approved within the year. This provides a method of comparing accident statistics of departments, jobs, and workers. The same committee has prepared a proposed standard practice for collecting information on accident causes, which will soon be published for trial use. The National Safety Council has recently requested the ASA to develop Specifications for Industrial Accident Prevention Signs which will apply primarily to the educational phase of the accident prevention program.

As an additional phase of the safety code pro-



gram, the development of safety codes in the occupational disease field is being undertaken under the procedure of the ASA. Within the year the committee in charge of this has issued its first report—*Fundamentals Relating to the Design and Operation of Exhaust Systems*—approximately four thousand copies of which have already been distributed. While this progress in such a difficult field is gratifying, it is unfortunate that because of inadequate finances the ASA is unable to provide the facilities necessary to the efficient development of this program so important to industry.

In the electrical field, the regular bi-annual revision of the National Electrical Code has been completed with the addition of a number of technical improvements. This revision is outstanding in the whole series of twenty or more because of the complete change in editorial form and arrangement for increased convenience to the user. Work in the same field includes a number of new or newly revised standards for insulated wire and cable, and a new standard for *Railway Motors and Other Rotating Electrical Machinery*.

In the mechanical field the new American Standard for Large Rivets has been approved and published, bringing to completion eleven years of work on the part of a representative committee of manufacturers, users, and technical experts. The year has also seen completion of four important machine tool standards submitted by the ASA committee on Small Tools and Machine Tool Elements.

Revision of the American Tentative Standard for Tolerances, Allowances, and Gages for Metal Fits is another important mechanical project now under consideration.

#### **Action on Standards**

During the year the Standards Council has approved fifty-nine of the new standards and revisions of existing standards which have been submitted to it. The Specifications for Designating Shrinkage of Woven Cotton Yard Goods have been returned to the submitting body in view of lack of an adequate consensus as shown by the opposition of the National Association of Finishers of Textile Fabrics representing the main body of producers.

Approval of one standard, the Aeronautical Safety Code, was withdrawn during the year at the request of the sponsor. This action was taken because the code is out of date and the industry concerned is not yet prepared to undertake a revision.

Approval of two others—Coarse Aggregates and Wrought Iron Plates—have been withdrawn but in these cases revisions are being undertaken.

In addition to the approval of several import-

ant standards which represent the culmination in many cases of several years of work, an important achievement of the Council during the year is the revision of its Rules of Procedure. Much time and effort have been given to revision during the past 18 months. It is believed that the Revised Procedure is a pronounced improvement over the previous Procedure which had been in use since 1928.

The Procedure is now more flexible, more clearly worded, and arranged in a more logical manner so that it can be readily interpreted by those not thoroughly familiar with Council operations.

#### **Four Methods Recognized**

As in the old Procedure, four distinct methods are recognized by which standards and revisions of standards may come before the Association for approval. Some changes were made to provide greater flexibility in meeting the variety of conditions which obtain today in standardization work and to insure more adequate representation of all groups in the development of standards.

New provisions have been added to expedite the work. One places a definite time limit for completing committee votes. Another requires organizations acting as sponsors for standardization projects to file semi-annual reports on the status of the work. An entirely new section, which will be of especial interest to committee members, summarizes the responsibility of cooperating organizations and their representatives on ASA committees.

Another very important new development within the year has been preparation for the company member forum proposed some time ago. The purpose of this, as Mr. Barnum has already mentioned, would be to bring standardization departments of company members into closer contact with the national movement and to aid them in the effective discharge of their work.

Plans are now under way for launching this forum early in the new year. Perhaps some of you here today have suggestions for methods of organization or company standardization problems that might profitably be taken up. If you or your organization is interested in the activity, now is the time to bring in your suggestions while the program is still in its formative stages.

#### **International Standardization**

It would be inappropriate not to refer in this report to our participation in international standardization work. Through the membership of our Association in the International Standards Association, American industry is now represented on ISA committees in the development of recommendations for the international unification of stand-



ards concerning ball bearings, steel and iron, sieves, coal, petroleum products, flow measurement by means of nozzles and diaphragms, tires, rims, and tire valves, preferred numbers, refractory materials, paints, cinematography, photography, acoustics. Through the International Electrotechnical Commission, it is cooperating in 25 projects having to do with electrical equipment, materials, and terminology. Safety codes prepared under the auspices of our Association are being used extensively by the International Labor Office for distribution to the various countries participating in its work. For example, the Grinding Wheel Code has been used as a basis of that Office's international monograph on safety work in that field.

In conclusion, it may be noted that on October 31, the last date for which complete data are available, we had a total of 382 approved standards on our books. Twenty-eight of these have been added during the last 12 months. During the same period, thirty-one revisions of existing

standards were approved. A total of 2,987 men are listed on our committees and 650 organizations are cooperating in our work.

These statistics serve to give an idea of the multitude of ASA activities which are supervised by the Standards Council. The earnest, unassuming work of 3,000 men serving on ASA technical committees, subcommittees, and special committees, and the cooperation of many hundreds of organizations on difficult inter-group problems, have made this work possible. While these 3,000 committee members have rendered yeoman service, if it were possible to bring them closer to the work as a whole and to infuse into every working committee and subcommittee a realization of the plan and purpose of the American Standards Association, I believe the work would be carried on more efficiently and with greater value to industry. However, when we realize that all of this work is entirely voluntary, we must acknowledge that it redounds very greatly to the credit of American industry.

### ***Our Front Cover***

Dana D. Barnum, past-president, American Gas Association, was re-elected president of the American Standards Association, and Edmund A. Prentis of the firm of Spencer, White & Prentis, Inc., was re-elected vice-president. The results of the election were announced at the Annual Meeting December 1.

Mr. Barnum has served as a member of the ASA Board of Directors since 1933, and as president of the Association for the past two years. Mr. Prentis was nominated as a member of the Board by the American Society of Civil Engineers in June, 1935 and has served as vice-president during 1936 and 1937.

F. M. Farmer, vice-president, Electrical Testing Laboratories, New York, was re-elected chairman of the Standards Council, in charge of standardization activities of the ASA. Mr. Farmer has been active in many different phases of ASA work, serving as chairman of two sectional committees and member of two others, and as a member of the Electrical Standards Committee and the United States National Committee of the International Electrotechnical Commission. He has been a member of the Standards Council since 1934 and chairman during the past year.

The one new officer elected this year is Dr. R. P. Anderson, secretary, Division of Refining, American Petroleum Institute, New York, who will serve as vice-chairman of the Standards Council in the place of C. E. Pettibone of the American

Mutual Liability Insurance Company. Dr. Anderson has taken an outstanding part in developing standardization in the petroleum industry for many years. He has been a member of the ASA Standards Council representing the American Petroleum Institute since 1934, and represents the API on two sectional committees—Identification of Piping Systems, and Petroleum Products and Lubricants. He is also secretary of the international standardization committee on petroleum.

### **ASA'S Largest Annual Meeting**

Two hundred and fourteen representatives of Member-Bodies, Company Members, members of the Board of Directors and Standards Council, and their guests, attended the largest annual meeting ever held by the American Standards Association, December 1, at the Hotel Astor, New York.

Announcement of election of officers, and annual reports of the president and chairman of the Standards Council, showing enlarged activities of the Association during the past year, preceded the main address of the meeting by Dr. Frank B. Jewett, vice-president, American Telephone and Telegraph Company, and president of the Bell Telephone Laboratories. He spoke on "Some Fundamentals in Standardization—Thirty Years in Retrospect."

"During these thirty years," Dr. Jewett said,

"our concept of standards has changed greatly. Initially we were concerned mainly with rather simple engineering standards—blood relation to the standards of the fundamental scientist. Gradually we have seen them evolve where necessary to incorporate elements primarily important to the operator and user or consumer."

Unusual feature of this year's annual meeting was the fact that representatives of several consumer groups were present. These included: Mrs. Roberta Lawson, president, National Federation of Women's Clubs; Arthur Besse, president, Associated Wool Industries; Harry A. Mereness, Director of Research, National Federation of Textiles; A. C. Elgart, managing director, Specialty Stores Association; and W. Ray Bell, president, Association of Cotton Textile Merchants.

Among the guests introduced at the meeting were presidents of Member-Bodies, including: Albert E. White, president, American Society for Testing Materials; C. W. Kellogg, president, Edi-

son Electric Institute; D. H. Murphy, president, National Electrical Manufacturers Association; Arthur D. Morris, president, American Institute of Bolt, Nut and Rivet Manufacturers; and A. R. Small, president, Underwriters' Laboratories.

Officers and representatives of new Member-Bodies and Associate Members were also introduced. These included: H. G. R. Bennett, president, Association of Iron and Steel Engineers; D. E. Douty, secretary, American Council of Commercial Laboratories; and Ed. Palmer, Associated General Contractors of America.

Welcomed as the representative of a neighbor standardizing organization was J. M. R. Fairbairn, chief engineer, Canadian Pacific Railway, and vice-chairman of the Canadian Engineering Standards Association.

Complete reports of the president and chairman of the Standards Council, and Dr. Jewett's address, are published in this issue, pages 315, 317, and 323.

### New Members of ASA

Three new organizations to join the American Standards Association recently are: the American Council of Commercial Laboratories, the Insulation Board Institute, and the Association of Iron and Steel Engineers.

The American Council of Commercial Laboratories, with headquarters in New York, consists of a group of some twenty laboratories whose principal business is analysis, testing, inspection, research, or consultation for clients. Its purpose is to promote the use of scientific analysis and to increase the promotional and other values of laboratory services by keeping these services on a high plane of integrity, effectiveness, and reliability. The Council is a new organization, its first president being Preston S. Millar, of the Electrical Testing Laboratories and its first secretary D. E. Douty.

The Insulation Board Institute of Chicago is the second association which was welcomed to membership at the Annual Meeting, December 1. It is already familiar with the American Standards Association through participation in the ASA committee work on specifications for plastering. Its president is B. J. Dahlberg of the Celotex Company and its secretary, Bert J. Westover. Membership in the Institute consists of companies engaged in the manufacture of wallboards of thermal and sound insulative character.

The Association of Iron & Steel Engineers, formerly the Association of Iron & Steel Electrical Engineers, with headquarters at Pittsburgh, had already demonstrated its interest in standardi-

zation work prior to joining the American Standards Association last October. Among other activities it has been instrumental in the development of a number of standards for steel mill apparatus, including such features as horsepower ratings, speeds, and principal dimensions of the motors commonly used in steel mills. The president of this organization is H. G. R. Bennett, of the Carnegie-Illinois Steel Company, and its managing director, Brent Wiley.

### Ainsworth on Executive Committee Of National Safety Council

Cyril Ainsworth, assistant secretary and in charge of the safety code work of the American Standards Association, has been elected to serve as a member of the Executive Committee of the American Society of Safety Engineers-Engineering Section National Safety Council.

### ASA Approves Revision In Analysis of Dry Red Lead

A minor revision in the text of the American Standard Methods of Routine Analysis of Dry Red Lead was approved by the American Standards Association following its submittal by the American Society for Testing Materials.

Copies of the standard, ASA K16.1-1937 (A.S.T.M. D 49-37) are available from the ASA at 25 cents.

Dr. Jewett speaks of standardization with the authority of experience. Introduced by Mr. Barnum, chairman of the annual meeting, as "a man who has had an outstanding part in developing standardization and research in the Bell Telephone System," Dr. Jewett calls standards and standardization "powerful tools for progress in the communication art" during the past 35 years.

He was active in the early development of the national standardization program. Because of his outstanding position in the electrical industry, he was chosen to head the group which prepared a constitution for the Electrical Standards Committee of the American Standards Association. The result was a working plan which strengthened and simplified the ASA's electrical program as well as that of the U. S. National Committee of the International Electrotechnical Commission.



Blackstone Studios

Frank B. Jewett

## Some Fundamentals in Standardization— *Thirty Years in Retrospect*

**I**N PRESUMING to speak to this group, concerned as you are with the details and intricacies of standardization, I cannot escape feeling somewhat like an embarrassed Rip Van Winkle. Although I have been interested in and more or less concerned with standardization in applied science for over thirty years, it has been a long time since I have had any active part in attempting to formulate standards. Actually I have not had time even to keep myself up to date on the details of your standardizing machinery.

As a matter of fact my last participation in standardization work had nothing whatever to do with standardization per se. It was concerned rather with some of the problems involved in the creation of this body and the formulation of procedural machinery capable of producing the things we designated as standards. In view of all

by

**Frank B. Jewett**

*Vice-President, American Telephone and Telegraph Company; President, Bell Telephone Laboratories*

this, you will probably not wish to take some of my observations too seriously.

During these thirty years our concept of standards has changed greatly. Initially we were concerned mainly with rather simple engineering standards—blood relation to the standards of the

fundamental scientist. Gradually we have seen them evolve where necessary to incorporate elements primarily important to the operator and user or consumer. The circle of those around the council table has enlarged as has the field in which progress by standardization is essayed. Each major enlargement has almost invariably been accompanied by some element of conflict of opinion. The established standardizing group (or some of them) are, and for the most part wisely, hard to convert to radically new ideas projected from the outside and from peculiar angles.

### *Changes Far-Reaching*

In the early days engineers were forced into attempts at standardization in order that they might discuss intelligently matters of common interest; and to compare results. These matters were of little interest to others at the time. For the most part the work of their committees and associations was of scant concern to the community which was coming more and more to use and depend on the products of engineering craftsmanship. In this respect, more possibly than in any other, the changes wrought by three decades of evolution have been far-reaching not only on the operations of society but likewise on the methods and objectives of standardization itself.

This Association, which is the direct lineal descendant of the first engineering society standards committees, has come gradually into a position of great power and grave responsibility—greater and graver even than most of us appreciate, I suspect. Not only does your approval influence directly the things of industry with which you are concerned and the affairs of their users, but in many directions it becomes part of the base of statutory regulations, ordinances, or laws. It is from this angle that much of your enhanced responsibility for careful, thoughtful, and meticulous functioning arises.

The formal ordinances or laws of the State are hardy "beasties," difficult to change and almost impossible of extermination. They spawn argument, conflict, and litigation at a prodigious rate and of a kind that gladdens the heart of those who like to fish in muddy water. Since much of the water is now of your making, it behooves us to look well to its quality and filtration before turning it into the public distribution system.

Outside what I have observed of standardization in other fields of applied science, substantially all my ideas concerning it, concerning its possibilities and limitations, concerning the objectives for which it is undertaken, and particularly concerning the basic rules which, it seems to me, should govern approach to the formulation of any standard, have been derived from the ex-

perience of nearly thirty-five years devoted to the orderly development of electrical communication. Throughout this entire period, standards and standardization have been looked upon as powerful tools for progress in the communication art. Occasionally, but not often in recent years, they have turned out to be serious obstacles to it.

Having determined many years ago to make the development of telephony and its collateral forms of electrical communication in the Bell System as far as possible an orderly process based on established principles of science and engineering, it was inevitable that standards and standardization should early come in for careful analysis.

Because of the peculiarly favorable conditions for unity of operation present in the structural set-up of the Bell System—research, development, manufacturing, installation, and operation all under a common direction and with all parts of the organization concerned with a common objective—our experience might be considered in the nature of a trial installation of standardization under ideally controlled conditions.

While all of us have subscribed to the common objective of the best and most extensive service which science and art can provide at the lowest cost consistent with financial safety, I would not have you think we have been free from violent differences of opinions in the matter of standards to be adopted or altered. In so far as matters relating to standards were wholly of internal concern, the one thing we have been spared was the conflict of divergent views based on real or assumed differences of objective.

Since the only thing we sell to the public is service, we have in the main been free also from the ordinary manufacturer-customer conflict of requirements in our standardization of the material things required for giving that service. To a considerable extent it is immaterial to us which of two things we decided to standardize, provided only that the one chosen when related to all the other factors which make up final overall cost will give the best life service at the lowest cost. Thus, as between two designs giving equally good operational results, we have no hesitancy in standardizing the one of higher initial cost if it is clear that by so doing we will save much more than the difference by reduced maintenance expense over its useful life.

### *Early Conclusions Strengthened*

My first study of standardization and the function and place of standards led me to certain conclusions, most of which have been strengthened by subsequent experience.

In the first place, it seemed clear that when the art had progressed far enough in any sector to



make true standardization feasible, the establishment of standards and rigid adherence to them until they were superseded by better standards was the only certain way to ensure orderly and expeditious progress.

In the second place, it seemed clear that the standards set should take account of *all* the pertinent factors and should so far as possible omit *all* non-essential requirements; in a word, that they should make mandatory only those things clearly necessary in the attainment of a desired result and should leave maximum freedom for variation in all else.

In the third place, it appeared that standards should never be allowed to take on the habits of things sacrosanct but should be under continuous critical surveillance; that they should be discarded or modified promptly whenever it was clear that they had ceased to be tools of progress and become hindrances to it instead.

### *Standards Short-Lived*

As a result of these and numerous other fundamental considerations which will occur to all of you, standards as we employ them in the Bell System are frequently short-lived affairs. We respect and value them for the help they give us while they live. We refuse to let them dominate our thinking and we discard them without a qualm when they become shackles. I think our attitude toward them might be expressed by saying that in our picture today's standards are today's statement of the most we know about the things we employ. Tomorrow's standards may or may not be the same. One thing we do when discarding an old friend is to be sure that the new one will serve us better and, so far as possible, have a definite bridge between the old and the new.

Another thing we learned early in our work was that a nice question was involved in determining just when to attempt standardization. If it was attempted too early in the development of a new thing or a new method we ran not only risk of wholesale use of something inferior to the best attainable, but to a considerable extent we shackled and strait-jacketed development. If standardization was too long deferred, development and use tended to run riot and produce a situation akin to one in which there were no standards or guide-posts to serve as definite points of departure.

On the whole I am inclined to think that the first, *i.e.*, a too early standardization, involves the greater hazard. It is a serious thing to stimulate the use of an inferior thing or method by designating it as a standard. It is a far more serious thing to shackle and delay development by so doing.

The establishment and promulgation of engineering or industrial standards always has a powerful influence on men's thinking and acting. There is universally a tendency to think and work *toward* a standard—seldom away from it, unless those concerned with the thing standardized appreciate fully that the standard is simply a transitory affair. Men will invariably spend more energy and thought in the direction of achieving the standard than they will on breaking new ground beyond it. They have a tendency to exercise their energy and inventiveness largely in devising cheaper ways than formerly of attaining standard results.

Where the established standard is distinctly above the average of the things to which it applies, this magnet-like tendency has its advantages because it stimulates those who are in the inferior position to seek a higher level, and, because they are in such case a majority, it acts to raise the general level even when it retards somewhat those who have been most progressive.

With premature standardization also all the forces involved are marshalled largely behind the status quo. Custom, established methods, money invested in tools or plant—all argue against change. It is so upsetting!! On the other hand, where proper standardization has been delayed beyond the time when it should have been done, the very turmoil and chaos of the resulting situation almost automatically impels conflicting interests to seek a common meeting ground. Further, from the welter of confused experience there is much material that can be salvaged in the making of a standard.

### *Need Trial Period*

Although I realize the difficulties inherent in the process, it has always seemed to me that the tool of "trial installation" could in many cases be a valuable addition to the machinery of standardization. Possibly in my ignorance of modern standard-making methods, I am advocating something which is already in effect. All that I have in mind is a field trial of the thing proposed on a sufficiently large scale and under sufficiently complete observational control to test thoroughly all the factors involved without committing everybody in advance to the new proposal. In a way the "tentative standard," or whatever you designate it, is along the lines I have in mind, although as I have observed its operation in some cases it seems to fall short of what I have in mind. It invites and depends too much on uncontrolled and uncoordinated observation and so retards final decision and leaves that decision largely involved in a compromise of opinions.

In the Bell System where, as stated earlier,

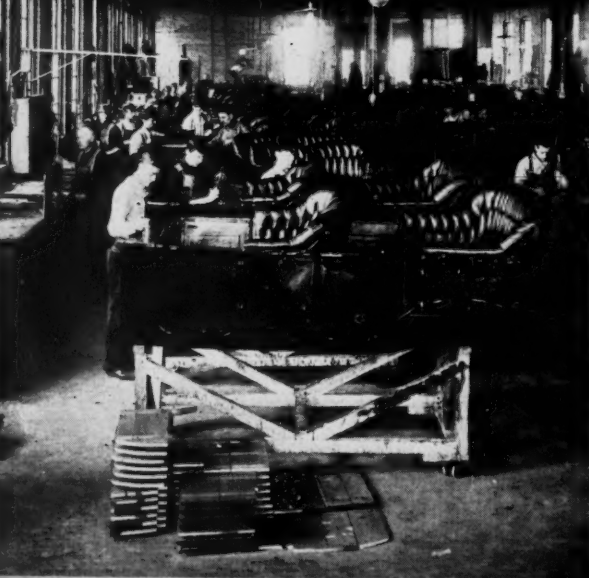
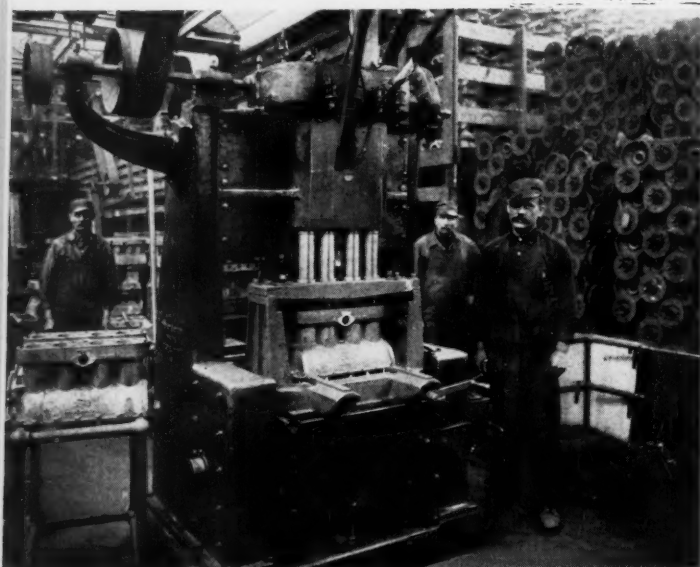
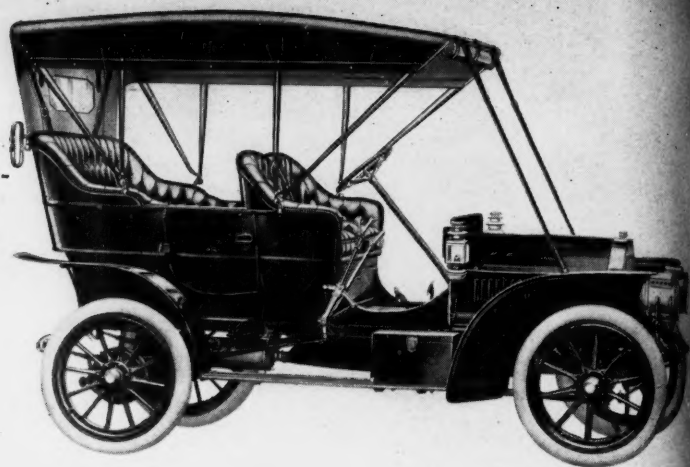
(Continued on page 328)

**Right:** Car of 1907-1908 vintage—before standardization came into its own. *Courtesy Cadillac Motor Car Co.*

**Below:** 1913—Model-T engine is heaved on belt-driven machine for cylinder boring.

1911—Wood bodies are built on crates on casters, hand-wheeled through the plant.

A 1913 "stable" where mechanical horses were given their final grooming. *Photos by Brown Bros.*



## Thirty Years of Stan

The technical world gasped in 1908 when Henry M. Leland took apart three of his Cadillac cars, replaced some seventy parts with others out of stock, re-assembled them without hand fitting, and drove them off. For the first time size control through maintenance of standard manufacturing limits was shown to be practicable in the automobile industry. Leland got the Dewar trophy for this demonstration.

In the same year Henry Ford started to make cars on conveyors—the final form of flow production possible only through strict standardization of dimensions, physical and chemical properties, methods of work and the time spent on each operation.

In thirty years all of these standards have



*Left: 1938 model car — highly standardized, yet individualistic. Courtesy Cadillac Motor Car Co.*

*Below: 1937—V-8 engine slides on rollers into electrically driven two-way boring machine. Courtesy Automotive Industries.*

*1937—Metal bodies move continuously on conveyor to main assembly. Courtesy General Motors Co.*

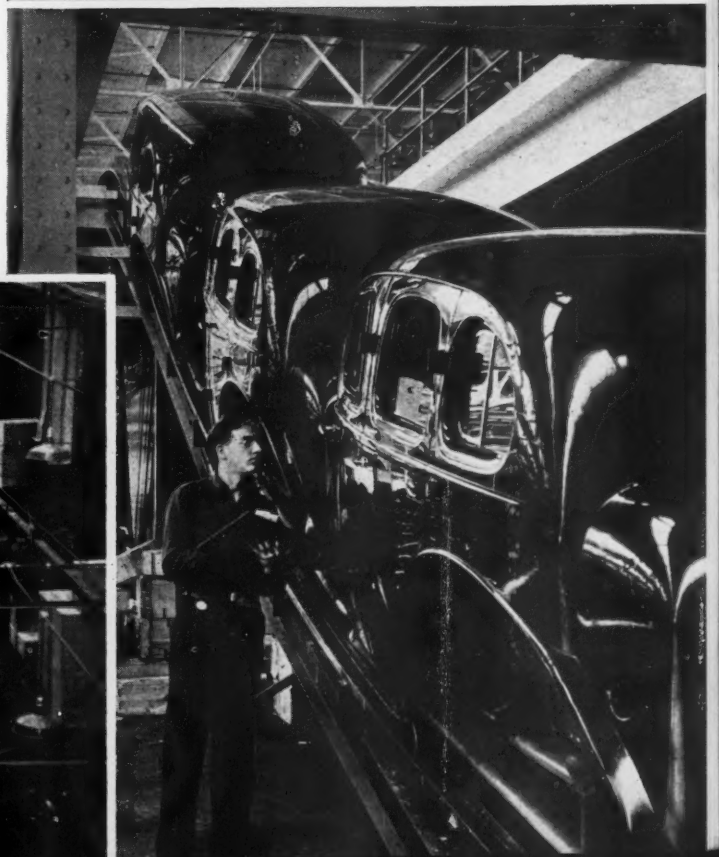
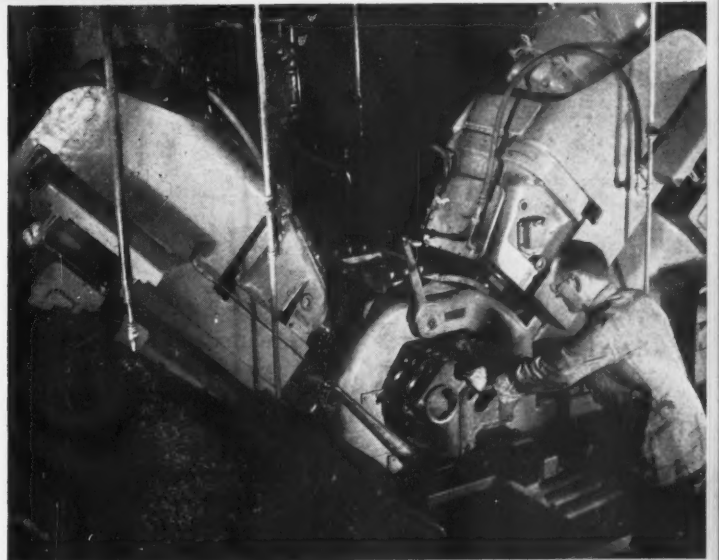
*On the modern main assembly line cars slide in standard rhythm toward completion. Courtesy Society of Automotive Engineers.*

## ers of Standardization

008 who been refined. A better automobile is built in less time at lower cost. Research combined with this Cad more perfected standardization technique has made this possible. And yet, while standardization has become more strict, it has also become more flexible. The 1937 boring machine shown here has higher power and accuracy than its 1913 ancestor, and in addition, its units can be re-grouped to suit a change in the product.

Automobile bodies once built on separate wood frames wheeled through the plant now are built and assembled to the chassis in continuous flow.

Standardization has done away with stagnation and created rhythm in production.





research and development, manufacturing, engineering, installation, and use are all looked upon merely as parts of a common problem, and where standardization is undertaken solely to insure the best that the current art affords and to facilitate improvement in the elements involved in rendering service, the controlled field trial has long been an established routine. No new thing of any importance is ever put into general use without it.

### ***"Industrial Guinea Pigs"***

Primarily designed to bring to light defects or improvements which have either been overlooked in the laboratory or which from their nature can only be determined in the field, the field trial serves almost automatically to determine the requirements of new standards which can and should be established for use, until they in turn are supplanted by still better ones. It is, in fact, use of industrial guinea pigs. While it does frequently involve experimentation on the ultimate consumer, it is only on a limited group of consumers, so that adverse reactions can never reach major proportions.

When it comes to how standards should be made and who should participate in their formulation, it has always seemed to me that machinery like that of the American Standards Association, or some body similar to it, is the only sensible kind to employ, except possibly in those fields involving matters of such vital importance to the general population that only political Government has the power to cope with them.

Even here, however, it is hard to see how an organization such as the American Standards Association can fail to be of the utmost assistance. The technical and scientific world has become so complex, and controlling factors in almost every sector are found in such unexpected places, that only by having a forum where every one who has a right to be heard can be heard, are we assured of that final judgment which will command adherence and respect.

### ***Compromise Necessary***

Furthermore, it is only from such a voluntary association that we can expect to have that degree of compromise without which no industrial standard, however perfect and desirable it may appear to its makers, can hope to succeed. I have observed that it is the exception rather than the rule when men are reasonably unanimous in acting like rational human beings. Ordinarily, we are a perverse lot who greatly dislike being told what we must or must not do even when we know that the prescription is clearly in our interest. If, however, we feel we have had our day in court

we are usually ready to give the verdict a fair trial, including a peaceful appeal, if necessary, to the court if we are still dissatisfied, before we resort to arson and mayhem.

It is when we feel that our interests have been grossly outraged or our evidence slighted and passed over in the final decision that we put on our guerrilla togs and go out on a foray. All of this is just as true in the field of standardization as it is in any other area of human activity. Any standard which is made and promulgated in opposition to the fixed opinions, however acquired, of any considerable group involved in its operation, is foredoomed to hard sledding and almost certainly to failure. Such a group would be more than human if they did not seek to make it fail.

It was considerations such as these which long ago led me to feel that to be successful in the field of standardization, the body responsible for a work which has become increasingly important to industry and commerce and to society generally, should have certain characteristics. It should be a voluntary association with the broadest possible constituency in the field of its interest; its operations should be democratic, with all that that implies of much essentially futile discussion and apparent procrastination; it should let facts, so far as they can be obtained, rather than opinions, determine the answer; finally, the Association itself should not be clothed with any police powers of enforcing its own findings—it should depend on the proven validity of its conclusions and the recognized standing of its members if it would insure general acceptance of its work.

### ***Importance of Facts***

Apropos of these two last points, I should like to remark that they but paraphrase observations made to me many years ago by two wise men, now dead, who were my friends—General J. J. Carty and Mr. Elihu Root. Early in my career as one of his assistants, General Carty impressed on me the importance of getting facts before forming opinions or drawing conclusions if one wished to obtain a valid and acceptable answer. It was his belief, and one he operated on consistently, that the answer to almost any question was 90 per cent automatically self-evident if one took the trouble to assemble and scrutinize the known or ascertainable facts which bore on it. Anyone who was ever involved with him in consideration of some knotty problem will never forget the interminable hours, days, and even weeks or months which he devoted to fact-finding. It was soul and patience-trying and it led into most unexpected places and to most unexpected individuals but it got results that were rarely wrong.

Long ago Mr. Root pointed out to me the in-



herent fragility of action based primarily on legal authority and the almost irresistible power which inhered in the judgment of a body of men possessed of no power to enforce that judgment but who were recognized to be men of ability and character and who formed their opinions with studied deliberation.

My distrusts of Government as a maker of standards that affect commerce and industry, *i.e.*, outside those sectors of public health or safety or national defense where Government alone can act, are more basic than fear of intrusion of political factors. They reside (1) in the belief that the agencies of Government, circumscribed as they are of necessity by the restraints of Government, are not in the best position to obtain and appraise all the facts; and (2) that being agencies of Government anything they emit tends to appear more important than it really is and more difficult to abandon or modify.

### ***Government Should Participate***

In other words, standards made by Government are, it seems to me, more likely to become instruments of restraint to progress than are those emanating from a mobile body like the American Standards Association. When to this is added the almost inevitable tendency that develops in men clothed with apparent authority to exercise it punitively, it seems to me that the case for the voluntary association in the field of standardization is substantially iron-clad.

Nothing of what I have just said should be construed as a belief on my part that Government should be excluded from participating in the making of standards—quite the contrary. Government should participate largely but, I think, on the same voluntary basis as the other members of the Association. Added to its general concern in establishing standards wherever these are clearly in the public interest, Government in times of peace is itself a large consumer and so entitled to be heard. In times of war it is the largest consumer. Anything in the direction of wise standard making in times of peace which will facilitate the functioning of Government and industry in time of war is obviously in the common interest.

I know that all the foregoing is "old stuff" to you and I am not saying it with any thought that it need be said here where all agencies—Governmental and non-Governmental—meet together. What I really had in mind in saying what I have is that possibly my opinion based on long experience may add a pebble to the dyke which periodically has to be raised against a demand that Uncle Sam take on part or all of this standardizing job because he can do it so much better

or so much faster. It is usually a plausible tale that is told and it has only one demerit—it is not true.

In concluding I do not know that I can do better than attempt in brief summary to restate my own picture of what proper industrial standards should be, how and by whom they can best be formulated, and some of the things which appear to me we should guard against in their use.

### ***"Industrial," "Absolute" Standards Differ***

Before doing this I should like, however, to emphasize two things which, while interrelated, are frequently badly confused particularly by the non-technical public. First, industrial standards are essentially different from the so-called "absolute" standards of science—such, for example, as the unit of time. The "absolute" standards if accurately determined and readily reproducible are "absolute" in a very real sense—they are ordinarily not subject to change with advancing knowledge. They are the scales by which we measure it.

Industrial standards on the other hand are akin to the hypotheses of the scientist. They define our present state of knowledge and they live only so long as they continue to define adequately. As soon as they fail so to define, they are for all practical purposes as dead as the ancient Dodo or the Great Auk and like them are of interest only in a museum.

To the non-technical this difference is not generally understood and from the misunderstanding arises much difficulty. To them "standard" has come to denote something fixed, final, and generally desirable. They instinctively resent anything which seems to cast doubt on its paternity and they impute base motives to all who advocate change despite the fact that changing industrial standards are the very hallmark of industrial progress.

Now for my summary picture.

### ***Tools for Progress***

To me a proper engineering or industrial standard is a temporary statement which includes all that is really essential of proven current knowledge to define the thing standardized. It is a specification which can be met in current commercial practice and a tool by which the art can progress. It carefully excludes everything which is non-essential in order to insure maximum latitude alike to the developer and user. In a word, it is a common meeting place for purchaser and seller with no signs of *caveat emptor* about.

It is continually under scrutiny by all who have



**George B. Cortelyou**

*Chairman of the ASA Advisory Committee; Former U. S. Postmaster-General, Secretary of the Treasury, and Secretary of Commerce; former president, Consolidated Gas Company.*

## Set Standard in Fact-Finding

### *Cortelyou Advises*

The progress the American Standards Association has made during the past year is epitomized in the heading to the Annual Report, "1937 Emphasizes Growth in ASA Program." It does. It emphasizes not only growth but also the Association's adherence to principles that have guided it from the beginning.

"Annual Reports Show Progress." They do—progress all along the line.

The Association continues to adhere to the principles enunciated in the advice General Carty gave to Dr. Jewett, "Ascertain your facts before reaching conclusions." If that same principle were applied by business and government in America and throughout the world in dealing with all our problems, what a sigh of relief would go up from all sides!

Let the American Standards Association continue to set up a standard—of thoroughgoing study of its problems, thoroughgoing efficiency in its activities, sanity in limiting the scope of its activities, and fine helpfulness to American industry. Then this splendid industrial organization will realize the hope of those who have been associated with it for so many years.

"Set ye up a standard in the land," in the Biblical words, to which all men may refer.

occasion to use it and is subject to ruthless modification or abandonment as soon as it has clearly ceased to function as intended.

It is created by a voluntary association of all groups who have a definite interest in its existence and by representatives of them chosen because of established reputation for competence and ability to weigh evidence, honestly and impartially. The standardizing body itself should be without legal power to enforce its conclusions but like the Supreme Court should depend on the recognized merit of its findings. Where reasonable doubt exists as to the necessity for standards, the Association should err on the side of too few rather than too many.

Where it is known or believed that the standard sought to be established is likely to become adopted into ordinances or laws and so subject to administration by men who have legal authority of enforcement, the obligation on the Association to be meticulous in its final decision is

greatly enhanced. Merely to clothe a standard with the habiliments of ordinance or law is to lessen materially our ability to change promptly in the face of changing conditions. With increasing prestige of the American Standards Association there will inevitably be increasing tendency for our gentlemen and lady "fixits" to enact laws based on its authority. Like "De Lawd" in "Green Pastures," we are great on passing miracles in the form of laws. The only thing that saves us from our sins in this respect is that we don't take the matter too seriously—not even seriously enough to want to stop the practice.

#### **List of Australian Standards**

An indexed list of standards and other publications issued by the Standards Association of Australia is now available from the American Standards Association Library.

# Building Code Correlating Committee Shows Development of Building Projects

by

**Rudolph P. Miller<sup>1</sup>**

*Chairman, Building Code Correlating Committee*

**E**IGHT projects have been authorized under the supervision of the Building Code Correlating Committee. Seven of these are new, and the eighth—a project already under way on Good Practice Recommendations for Brick Masonry—has been extended to include building code requirements for masonry.

**Building Code Requirements and Good Practice Recommendations for Masonry.**—The personnel of this reorganized committee has been completed and will soon be recommended for approval. A publication on masonry of the former Department of Commerce Building Code Committee will probably be distributed soon to the sectional committee, as the basis for drafting building code requirements.

**Building Code Requirements for Fire Protection and Fire Resistance (A51)**—The National Board of Fire Underwriters is preparing a draft for consideration by the other sponsors—the National Fire Protection Association and the National Bureau of Standards.

**Building Code Requirements for Chimneys and Heating Appliances (A52)**—The National Board of Fire Underwriters, sponsor, reports that it is considering handling this project in two parts.

The first part will be substantially that of the Board's 1927 Standard Ordinance for Chimney Construction. This Ordinance, pertaining particularly to chimney and fireplace construction, has had wide acceptance as a municipal building law.

The second part will deal with devices for chimneys and heating equipment.

This project has not been stressed by the sponsor because of the greater importance at this time

of Building Code Requirements for Fire Protection and Fire Resistance (A51).

**Building Code Requirements for Light and Ventilation (A53)**—A draft, in preparation for some months, will soon be circulated to the sectional committee.

**Building Code Requirements for Fire Extinguishing Equipment (A54)**—The National Fire Protection Association, sponsor, reports that further action on this subject has been deferred, pending developments on the project for Building Code Requirements for Fire Protection and Fire Resistance (A51) and other related committee work. The NFPA believes that standards already developed by it and published by the National Board of Fire Underwriters on automatic sprinklers, standpipe and hose systems, and first aid fire appliances will furnish an adequate basis for building code requirements for such equipment. At the present time each of these three standards are being revised by an NFPA technical committee. The Association believes that because this technical work will bear directly on

## Six Correlating Committees Report Plans for New Work

Standards completed, new committees organized, and plans for future activity were reported by the six general administrative committees which supervise and correlate six important phases of the American Standards Association's program—building codes, consumer goods, electrical and mechanical standards, mining and safety. These committees, representing outstanding organizations in each field, were called upon to tell the Standards Council how their work is progressing.

Highlights of each committee's work during the past year—with the exception of the Mining Standardization Correlating Committee, which did not present a report—are given here.

<sup>1</sup>Consulting Engineer.

the project, substantial progress is being made on the basic technical requirements.

**Administrative Requirements for Building Codes (A55)**—This committee has been very active in recent months. A second draft of the proposed standard was considered at a meeting in New York November 8, 1937, and another meeting is being considered for the near future. The personnel of the committee has been submitted to the American Standards Association and recommendations for its approval will be made soon.

**Building Code Requirements for Excavations and Foundations (A56)**—The personnel of this sectional committee is nearly completed and plans for undertaking the work are being considered.

**Building Code Requirements for Iron and Steel (A57)**—One meeting of this committee was held in April, 1937, and a second has been called for January, 1938. As a basis for its work, the committee is studying the Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings of the American Institute of Steel Construction as revised in 1936; the Code for Fusion Welding and Gas Cutting in

Building Construction and for Resistance Welding of Structural Steel Building Construction of the American Welding Society; and several specifications of the American Society for Testing Materials for various types of steel.

The personnel has been submitted and recommendations on its approval will soon be presented to the Standards Council.

**Advisory Committee on Working Stresses**—During recent months a compilation of data on some 800 tests on masonry of various kinds has been prepared and distributed to the Advisory Committee. This committee of experts is studying the problem of suitable working stresses of iron and steel from the engineering viewpoint. Its recommendations will be considered by the building code committees.

A similar compilation summarizing tests on structural steel will be ready soon for consideration by members of the Advisory Committee.

**New Projects**—The Building Code Correlating Committee is now considering subjects customarily included in building codes but not so far covered by ASA projects. Reinforced gypsum, loads, and signs and billboards are being considered as suitable subjects for development.

## Advisory Committee Recommends Standards on Consumer Goods

THE Advisory Committee on Ultimate Consumer Goods, bringing together representatives of national consumer organizations and the National Retail Dry Goods Association, with a membership of 6,500 retail stores, is studying the need for and possibility of developing standards for goods purchased over the counter by the ultimate consumer.

Two new projects—Standardization of Sizes of Children's Garments, and Definitions of Terms Used in Retailing—have been authorized by the American Standards Association during the past year as the result of the Committee's recommendations.

Ruth O'Brien, U. S. Bureau of Home Economics, and vice-chairman of the Advisory Committee, reported to the Standards Council that data being gathered by the U. S. Bureau of Home Economics in its study of children's body measurements will be ready for statistical analysis sometime during December. These data will serve as the basis for work by the Sectional Committee on Standardization of Sizes of Children's

Garments when it is organized.

On Definitions of Terms Used in Retailing, the National Retail Dry Goods Association, as sponsor, has already begun to collect information. The sectional committee is being organized.

Steps to reorganize the Sectional Committee on Specifications and Standards for Sheets and Sheeting (L4) are being taken as the result of study of this subject by the Advisory Committee.

Development of standards for bedding and upholstery, now being studied by a subcommittee, was suggested by the National Association of Upholstery and Bedding Law Enforcement Officials in an article in the November issue of INDUSTRIAL STANDARDIZATION.

Other subcommittees are actively at work investigating possible standardization of household refrigerators, waterproof and water repellent materials, boys' clothing fabrics, shoes, and hosiery. Their recommendations will be considered by the Advisory Committee and suggestions for action will be submitted to the Standards Council of the American Standards Association.



## Increased Demand for Safety Challenges ASA's Program<sup>1</sup>

by

**L. F. Adams<sup>2</sup>**

*Chairman, Safety Code  
Correlating Committee*

AT the time of the Annual Meeting last year, Mr. Pettibone, then chairman of the Safety Code Correlating Committee, reported to you concerning the various trends in the safety code program—the development of some forty or fifty industrial safety codes; the need for additional industrial codes and for performance specifications for safety devices; and plans for developing standards in the highway traffic and occupational disease fields.

During the past year the safety code program in some of these fields has progressed. Revisions of some important codes, such as the American Standard Safety Code for Elevators, have been approved. With the Elevator Code, the ASA also approved an American Recommended Practice for the Inspection of Elevators to serve as a handbook for the general use of elevator inspectors in the practical application of the standard. A project long upon the books has been partially completed with the approval of the American Standard Method of Compiling Industrial Injury Rates. Another proposed American Standard covering Industrial Injury Causes has been developed under this project and will soon be printed and distributed for trial use, comment, and criticism. Recently the National Safety Council requested the ASA to develop Specifications for Industrial

Accident Prevention Signs which will apply primarily to the educational phase of the accident prevention program.

The work on these projects and others now under development indicates some advancement in the safety code program, but the chief progress has been in the widespread use of American Standard Safety Codes by industry, state and federal governmental agencies, insurance groups, and others. In particular, state governmental agencies have come to realize the importance of uniform national standards and are now using them as the basis of state regulations. Insurance groups are using the codes in making recommendations to their assured, and many manufacturers are designing the safety equipment they produce in accordance with such specifications as exist in the safety codes.

The development and periodic revision of some fifty safety standards, and the use of these standards, definitely testifies to the value of the service rendered by this phase of ASA work.

Whether or not this value is fully recognized, particularly by Member-Bodies of the American Standards Association, is a question which I would like to raise for a moment's discussion.

### **Few New Projects**

Industry has adopted and used American Standard Safety Codes to some extent, but not as generally as have the regulatory bodies and other such groups cooperating in their development. With the exception of the new proposal for standardization of accident prevention signs, it is a number of years since any national industrial group has requested the initiation of a project for an industrial safety code.

Industry, and by industry I mean the groups which actually pay the industrial accident prevention bills, is therefore not using the facilities of the American Standard Safety Code program to the fullest extent possible.

This picture is difficult to understand when it is contrasted with the increasing demand for safety

<sup>1</sup>Annual Report presented by the chairman of the Safety Code Correlating Committee, supervising the safety code program of the American Standards Association.

<sup>2</sup>General Electric Company, Schenectady, N. Y.

in many phases of industrial development; the greater emphasis being placed on the necessity for improved working conditions; and the increased supervision by governmental groups, which makes closer contact necessary between industry and government.

Because of the increased demand for safety, the American Standards Association should continue to develop and enlarge its program, which will provide industrial safety codes in all important occupations. This can only be done with the cooperation of all its Member-Bodies. A large number of exceedingly important industries are represented on our Standards Council and various correlating committees. While not all of these groups find the safety code program of paramount interest, nevertheless safety is a factor in every industrial operation and better methods of preventing accidents are needed.

### ***Needs Industry's Support***

It has been proven beyond a doubt that the ASA has the facilities to develop uniform national industrial safety codes which are acceptable to all interests. This is by far the most important reason for expanding the program. Expansion and growth of the program depend upon cooperation from industry in both a technical and financial way. Industry in general, and the Member-Bodies of the ASA in particular, are invited to study their own accident prevention needs and the use of ASA facilities for the solution of these problems.

The Safety Code Correlating Committee now numbers twenty-three organizations in its membership, consisting of industrial groups, state and federal governmental groups, technical societies, and insurance groups. During the past year the Association of American Railroads and the Conference of State and Provincial Health Authorities have been added to its membership. The committee is therefore well equipped to carry on its duties as an advisory committee to the Standards Council for the safety code program. During the last two or three years the membership has been increased by the addition of three or four important industrial groups.

It was through a request from one of these groups that a digest of all the American Standard Safety Codes has been prepared, printed, and distributed. This document is valuable from a promotional point of view because it gives a brief history of the program, and a paragraph describing the contents of each code. These pamphlets are available to any groups who may wish to distribute them.

In addition to expanding the program for safety codes in the industrial field, there is now a

widespread demand for adequate standards in the occupational disease field. The American Standards Association has been urged to undertake the development of standards in this field.

### ***Report on Exhaust Systems***

This program received the enthusiastic cooperation of a number of groups about two years ago when the National Advisory Committee on Toxic Dusts and Gases was organized. Since that time a document of far-reaching importance has been issued under the auspices of the ASA. I refer to the Report on Fundamentals Relating to the Design and Operation of Exhaust Systems, developed by the committee on exhaust systems. Since this report was issued, the work has come to a standstill due to inadequate support by those groups who originally urged the development of such a program. Standards in this field are needed by industry and government.

A complete program to develop standards for the prevention of occupational diseases in a number of industrial processes has already been planned by the exhaust code committee. This program needs the moral and financial support of industry. Without such support it will be delayed, and this delay will cost industry far more than the development of such a program.

### ***Recommend Advisory Committee on Highway Safety***

As reported to you previously, four standards have been approved by the ASA in the highway traffic field. Work on the project covering standards for the inspection of motor vehicles has definitely progressed. This is a good beginning toward developing a group of standards in the highway traffic field. A number of prominent groups in this field have recommended the organization of an Advisory Committee to supervise the work. This recommendation is now being considered by a special committee of the SCCC.

A good many members of the Standards Council are definitely interested in this program and if it is to be a success, these groups must offer their active support.

In general, I have given you a brief summary of the needs and aims of the Safety Code Correlating Committee. Some of these can and will be studied by the SCCC, but to fully achieve these aims and meet the urgent needs for carrying on and expanding the safety code program, industry, and in particular the Member-Bodies of the ASA, must give their definite support and interest to it.



Above, left to right:

Alfred Iddles, vice-president,  
United Engineers and Con-  
structors, Philadelphia

H. W. Brightman, vice-president,  
L. Bamberger & Co., Newark  
E. A. Holbrook, Dean, School of  
Engineering, School of Mines,  
University of Pittsburgh  
Rudolph P. Miller, Consulting  
Engineer, New York

Left:

C. R. Harte, Connecticut Com-  
pany, New Haven, Conn.

Right:

L. F. Adams, General Electric  
Company, Schenectady, N. Y.

Right: Blank-Stoller, Inc.

Mechanical

Consumer

Mining

Building

Electrical

Safety

Bachrach Studios; Courtesy  
American Transit Assn.

### Chairmen of ASA Correlating Committees

## Electrical Standards Committee Shows Activity on Many Projects

**S**EVEN standards approved by the American Standards Association during the past year on the recommendation of the Electrical Standards Committee bring the results of new developments into such fundamental electrical problems as protection against lightning, insulation of power cables, protection of electrical installations against fire hazards, and use of dry cells and batteries.

Three revised standards and four new standards were approved, according to the reports of sectional committees submitted to the Electrical Standards Committee.

Many other problems are on the way to solution, the committees reported. Revisions have been undertaken on such diversified subjects as the National Electrical Safety Code, paper in-

***New standards, revisions, and recommendations for action make electrical committees' work outstanding during 1937***

insulation for lead-covered power cables, methods of testing molded materials, and illuminating engineering nomenclature and photometric standards. New standards on air switches, circuit breakers, electrical measuring instruments, and transformers are well on the way to completion.

The electrical committees are not content to confine their activities to problems exclusively



American in nature. Many of them are also co-operating in standardization activities affecting international problems through the United States National Committee International Electrotechnical Commission and the International Standards Association.

The activities of the 36 electrical committees which reported to the Electrical Standards Committee are shown in the following resume. The ESC is sponsor for 8, and reports to and advises the Standards Council on the activities of the 28 others. In the following reports, the name of the chairman or secretary of the sectional committee is given in all cases where the ESC is sponsor. Whenever some other organization has the administrative responsibility for the committee, the name of this organization is given.

**National Electrical Code (C1-1937)**—The 1937 revision of this code was approved by the American Standards Association in September. It was developed by a sectional committee sponsored by the National Fire Protection Association.

The committee is continuing its program, planning for a 1940 edition of the Code. The committee as a whole will probably not be especially active until late in the fall or winter of 1939. In the meantime, however, the several Article Committees and other special committees will function as heretofore.—*National Fire Protection Association.*

**National Electrical Safety Code (C2-1927)**—A revision of this code has been started and the personnel of a new sectional committee submitted to the American Standards Association for approval.

The first meeting of the new committee was held in May, 1937. Five technical committees and three subcommittees have been set up as working committees and are now actively engaged in considering items for a revised code.—*National Bureau of Standards.*

**Code for Protection Against Lightning (C5-1937)**—This code was revised in 1937, the revision covering Parts 1, 2, and 3, and has been approved by the two sponsors and by the American Standards Association. The National Bureau of Standards is issuing a new Handbook No. 21 containing the revised Code.—*National Bureau of Standards; American Institute of Electrical Engineers.*

**Terminal Markings for Electrical Apparatus (C6)**—A revision of this standard was approved and published during 1936. Since publishing the standard, some suggestions for revisions and additions have been received. A meeting of the committee will be held to act upon these changes and any recommendations from the International Electrotechnical Commission.—*National Electrical Manufacturers Association.*

**Insulated Wires and Cables (C8)**—During the year two new standards were approved by the American Standards Association:

Specifications for Weather Resistant (Weather-proof) Wire and Cable, URC Type. (C8.18-1936). Approved December 24, 1936.

Specifications for Varnished Cloth Insulation for Lead Covered or Braided Power Cables (C8.13-1937). Approved October 20, 1937.

This makes a total of 16 wire and cable standards approved by the ASA.

A revision of the existing standard for impregnated paper insulation for lead covered power cables has been approved by the committee and submitted to the sponsor.

A new standard, Specifications for Metallic Coverings, has also been submitted to the sponsor.

Specifications for Bare Stranded Copper Cable, which have been in the course of preparation for several years, are now being balloted upon by the sectional committee.

#### *Collected Standards*

Of the 16 approved standards, 14 are now available in printed form, either singly or together in a suitable binder cover. The standard for varnished cloth insulation is being printed, and a proposed revision of the standard for impregnated paper insulation is before the sponsor for approval.

When the two new standards on stranded conductors and metallic coverings have been approved, there will be a total of 18 standards on wires and cables. These will represent a reasonably complete set of standards for the components of the principal types of wires and cables for power purposes, and in some cases complete technical standards.

It is expected that when all of these standards are available as a group their real purpose—to provide basic technical standards for all concerned with the manufacturing, marketing, and use of wires and cables—will be more evident. It is particularly hoped that they will be useful to those who prepare purchase specifications for this class of material.

#### *Work in Progress*

The committee has now completed the basic program inaugurated at the time of its organization in 1921. Its future activities will have to do with the revision of these standards from time to time to keep them up to date, and the development of supplementary standards. Among these are:

**Rubber Insulation for High Voltage Applications.** A specification for rubber insulation for use in wires and cables to be operated at above 5000 volts which is acceptable to all concerned is gradually being developed.

**Heat-Resistant Rubber Insulation.** A specification for rubber insulation for application to wires and cables to be operated at higher than the usual temperatures for this class of insulation has been developed in tentative form.

**Saturants and Finishes for Aerial Insulated Wires and Cables.** A draft of specifications for these materials is about to be submitted to the technical committee for consideration.

**Asbestos-Covered Wire.** Specifications for certain applications involving asbestos covering have been developed and are now being studied by the technical committee concerned.

Investigations are being made on methods of testing magnet wire and some consideration has been given to preparation of specifications for magnet wire with an extra-heavy enamel covering. Additional specifications for other saturants and finishes than those for aerial cable will be undertaken if investigation shows a sufficient demand for them. This is also true for certain other component parts of cables such as rubber-filled tape, and jute fillers and servings.—*F. M. Farmer, chairman.*

**Hard-Drawn Aluminum Conductors (C11)**—The standard approved in 1927 continues to be satisfactory. The committee is active as advisers to the U. S. National Committee of the International Electrotechnical Commission.—*American Institute of Electrical Engineers.*

**Code for Electricity Meters (C12-1928)**—Representatives of the National Bureau of Standards, the Edison Electric Institute, and the Association of Edison Illuminating Companies, sponsors for the 1928 revision of the Code, met at the National Bureau of Standards on November 18, 1937, to discuss its revision and reorganization of the sectional committee. The following recommendations were made:

1. That the Code be revised and that the revision be begun as soon as possible.
2. That there be joint sponsorship by the Electric Light and Power Group of the American Standards Association and the National Bureau of Standards.
3. That a sectional committee be organized and that following groups be requested to designate members:

**Regulatory and standardization groups**

National Bureau of Standards	2
State Public Service Commissions	3

**Utility Companies**

Association of Edison Illuminating Companies	2
Edison Electric Institute	2
Municipal systems	1

**Manufacturers of watthour meters**

National Electrical Manufacturers Association	4
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**General Interests**

American Institute of Electrical Engineers	2
Electrical Testing Laboratories	1

**Total** 17

## 16 Standards Completed For Wires and Cables

The committee on Insulated Wires and Cables has now completed its original program, started in 1921. Sixteen standards on the fundamental problems involved give technical data for any one interested in manufacturing, marketing, or using wires and cables. Two more are now in the final stages of development and will soon be submitted for approval.

Fourteen of these standards are now available in a special cover.

It was also suggested that a meeting of the committee might be held in the latter part of January for organization of the sectional committee and assignment of the work to working subcommittees.—*ASA Electric Light and Power Group; National Bureau of Standards.*

**Tubular Steel Poles for Electric Line Construction (C13)**—There has been no occasion from the standpoint of our own organization for revision of this standard since its adoption in 1926 and 1935 respectively, nor have we received any comments or suggestions from other organizations indicating that further revision is necessary or desirable.—*American Transit Association.*

**750 Volt Direct-Suspension Overhead Trolley Contact Construction (C15)**—There has been no activity on this project during the past year and we do not anticipate that there will be any occasion for further consideration of the standard during the coming year.—*American Transit Association.*

**Radio (C16)**—The 1936 report of this sectional committee indicated that a number of standards were then being ballotted on for adoption. A strong objection by the Radio Manufacturers Association representative made impossible the acceptance of a large proportion of this material. Under the conditions, it was considered desirable to withhold final action and thus permit an opportunity to work out the differences of opinion which existed within the R. M. A. group. This has taken a longer time than was expected but it is expected that discussions now under way will bring an agreement.

In its capacity as advisor to the U. S. National Committee of the International Electrotechnical Commission, the committee has prepared replies to a number of documents which were considered at the meeting of Committee 12 on Radio to be held in Italy.—*Institute of Radio Engineers.*

### **Miscellaneous Pole Line Material (C17)**

—This project has never been actively started. The Committee on Scope of the Electrical Standards Committee is now considering the project.

**Dry Cells and Batteries (C18-1937)**—Approval of the revised American Standard for Dry Cells and Batteries on January 4, 1937, marks the completion of another step in the development of a specification which had its inception in the need for a governmental standard during the critical years 1917-1928. The sectional committee has been active since its organization in 1926 and has prepared three revisions of the specification which became American Standards in 1928, 1930, and 1937.

Periodic revisions of the specification have become necessary as a result of changes in the art. New types of cells have been developed to meet new industrial uses and the available output of older types of the better brands is now three to four fold greater than 20 years ago.

The new specifications include for the first time standards for industrial flashlight batteries and hearing-aid batteries.

Future revisions of the specifications will undoubtedly become necessary as they have in the past. The sectional committee is continuing and will offer recommendations for revising the specifications when the need arises, in order that the specification may keep pace with advances in the art.—*National Bureau of Standards.*

**Industrial Control Apparatus (C19)**—It is expected that consideration will soon be given to a revision of the existing American Standard for Industrial Control Apparatus (C19-1925). The personnel of the committee is now being brought up to date. It is expected that the standard for International Control of the National Electrical Manufacturers Association published this year will be turned over to the committee as material for preparing an American Standard.—*American Institute of Electrical Engineers; National Electrical Manufacturers Association.*

### **Electric Motor Frame Dimensions (C28)**

—There have been no developments on this project during the past year.—*American Society of Mechanical Engineers; National Electrical Manufacturers Association.*

### **Insulators for Electric Power Lines (C29)**

—Although no meetings of this sectional committee have been held during this year, the committee, through its chairman, has kept in touch with various other related activities by correspondence and conference, including work being done by foreign groups.

The chairmen of the four subcommittees organized at the last meeting of the sectional committee, February 1935, report interest and progress in their respective subjects.

One of these has submitted a preliminary draft

dealing with Pin Type Insulators which it plans to submit to the sectional committee for further study and consideration.

The subjects of standardization of tests and insulation coordination are being dealt with in this country and abroad and an effort will be made to coordinate the results of these studies with the revision of insulator standards which this sectional committee has undertaken.—*A. B. Campbell, Secretary.*

### **Electrical Devices and Materials with Relation to Fire and Casualty Hazards (C33)**

—The sponsor, Underwriters' Laboratories, Inc., states that there is "Nothing to report" on the development of this project during the past year.

**Mercury Art Rectifiers (C34)**—Revision of the report published by the American Institute of Electrical Engineers in 1934 does not seem desirable at this time due to the rapidly changing conditions in this field.—*American Institute of Electrical Engineers.*

### **Railway Motors and Other Rotating Electrical Machinery on Rail Cars and Locomotives (C35)**

—The American Tentative Standard, approved in December, 1936, was published early this year. N. W. Storer, who has been chairman of the sectional committee for many years, has resigned and Frank B. Powers, manager, Railway Engineering Department, Westinghouse Electric & Manufacturing Company, has been appointed chairman. The chief activity of the committee during the year has been in international work.—*American Institute of Electrical Engineers.*

**Power Switchgear (C37)**—Two standards were submitted to the Electrical Standards Committee and have now been fully approved by the American Standards Association. They are:

Relays Associated with Power Switchgear (C37.1-1937)

Automatic Stations (C37.2-1937)

The proposed standard on Air Switches (C37-3) was sent with a ballot for the approval of the sectional committee on August 6. This proposed standard is described in the scope of the project as a standard covering "disconnecting and horn gap switches."

Three proposed standards are now being prepared by subcommittees: Oil circuit breakers; Metal-clad switchgear; Large air circuit breakers.

One or more drafts of these proposed standards have been prepared, but because they are still in preliminary form they have not yet been sent to the main sectional committee.

The task of the Oil Circuit Breaker Subcommittee has been somewhat complicated by parallel activity on the part of a subcommittee of the Protective Devices Committee of the American Institute of Electrical Engineers, which is actively working on the revision of AIEE Standard 19.

It is understood that the same AIEE subcom-



mittee is now undertaking the preparation of a revised air circuit breaker standard, to supersede AIEE Standard No. 20.

Two projects are awaiting action by other organizations before they can proceed: High voltage fuses and associated current limiting resistors (above 750 volts); Power connections of types used with switchgear.

Until agreement is reached between the American Institute of Electrical Engineers and the National Electrical Manufacturers Association on the basis of current rating of fuses, which the AIEE proposes to change from that previously in force, this committee cannot proceed with preparation of a proposed American Standard.

The appearance of NEMA Publication 37-47, Electric Power Connector Standards dated September, 1937, will apparently make it possible for this committee to proceed with the preparation of a proposed American Standard for power connectors of types used with switchgear.

Projects which are included in the scope of this project but have not yet been started cover: Switchgear assemblies; Network protectors.

At the meeting of the sectional committee in 1934 it was decided that neither of these projects appeared to be as urgent as other tasks assigned to this committee. Hence, no progress has yet been made in preparing proposed American Standards for these classes of equipment.—*H. R. Summerhayes, Chairman.*

#### **Electrical Measuring Instruments (C39)**

—The work of this committee has reached the stage where the final draft of a proposed standard has been submitted to the members for letter ballot. All but a few of the ballots have now been returned. Those received all indicate approval. It is expected that the standard will be submitted to the American Standards Association for approval in the next few weeks.—*E. J. Rutan, Chairman.*

**Storage Batteries (C40)**—No suggestions for revisions have been received.—*American Institute of Electrical Engineers.*

**Definitions of Electrical Terms (C42)**—A revised report listing more than 6,000 terms is now out to letter ballot of the committee, and is almost complete. A meeting of the Executive Committee will be called as soon as the ballot is completed to consider whether a supplemental ballot on added terms and revisions should be circulated.—*American Institute of Electrical Engineers.*

**Overhead Trolley Line Material (C43)**—This project was authorized in 1928 but no work has been done. The sponsor is investigating and will report on either initiating work or dropping the project.—*National Electrical Manufacturers Association.*

**Rolled Threads for Screw Shells of Elec-**

**tric Sockets & Lamp Bases (C44)**—The Working Committee completed its recommendations, on a standard to provide a means of gauging lamp bases and sockets when completely assembled. This recommendation was not approved by the subcommittee to which the Working Committee reported and there appears to be no chance of agreement. The sectional committee is considering dropping the subject because it appears that the present standards are all that are wanted at the present time.—*American Society of Mechanical Engineers; National Electrical Manufacturers Association.*

**Electric Railway Control Apparatus (C48)**—Standard No. 16 of the American Institute of Electrical Engineers was approved as American Standard in 1931. In January, 1937, an investigation of the project showed that it continued to be satisfactory and that there was no need for revision.—*American Institute of Electrical Engineers.*

**Rotating Electrical Machinery (C50)**—This committee formulated proposals to the International Electrotechnical Commission this year, but otherwise has been inactive. Comments on the standards for rotating machines, however, are accumulating and in time it will be desirable to undertake a revision. The committee expects to undertake a review of the test codes prepared by the American Institute of Electrical Engineers, soon, with the expectation that these will eventually be made into American Recommended Practices.—*E. B. Paxton, Secretary.*

**Electric Welding Apparatus (C52)**—There has been no development in this project during the past year.

Some activity on this subject has been evident in the international field, however. A proposal by the Netherlands national committee of the International Electrotechnical Commission that international standards be developed has been approved by this sectional committee and the U. S. National Committee has been so advised.

In addition, it has recently been proposed that a comprehensive project on all forms of welding be initiated under the International Standards Association. This is receiving consideration in the ASA Mechanical Standards Committee and will be considered by the Committee on Scope of the Electrical Standards Committee, which will also consider the need of a reorganization of the sectional committee.—*American Institute of Electrical Engineers; National Electrical Manufacturers Association.*

**Capacitors (C55)**—No suggestions for revisions in the American Standard (AIEE Standard No. 18) approved in 1934 have been received.—*American Institute of Electrical Engineers.*

**Transformers (C57)**—The sectional committee has practically completed its work on the

### Electrical Committees Cooperate In International Standardization

Radio, electric welding apparatus, insulators for electric power lines, rotating electrical machinery, and electrical insulating materials are some of the electrical subjects on which international standardization activity is developing. Committees of the American Standards Association have cooperated with the U. S. National Committee of the International Electrotechnical Commission in keeping in touch with international developments on these subjects.

standards for power and distribution, measuring and constant current transformers, test codes, and operating recommendations, and it is expected that this material will be in final form very soon to send to the members of the sectional committee for approval. After this approval is obtained the material will be turned over to the American Standards Association to be printed and distributed throughout the industry for a trial period of one year before they are issued in final form as approved American Standards.—*V. M. Montsinger, Chairman.*

**Electrical Insulating Materials (C59)**—This committee has kept in touch with the work of the U. S. National Committee of the International Electrotechnical Commission on projects relating to insulating oils, and shellac and synthetic resins.

A special committee was appointed to review a proposal for submitting the Standard Methods of Testing Electrical Porcelain (A.S.T.M. D 116) to the American Standards Association. Its report was referred to letter ballot of the sectional committee, which voted that further consideration of these methods of test be temporarily deferred. A revision of these test methods, published as tentative standards by the American Society for Testing Materials, has now been referred to the Special Committee to determine whether they would be suitable as revised for submittal to the American Standards Association when adopted by the A.S.T.M. A report has been received from the Special Committee but has not yet been acted on by the sectional committee.

A revision of the A.S.T.M. Standard Methods of Testing Molded Materials Used for Electrical Insulation (A.S.T.M. D 48; ASA C59.1), adopted by the A.S.T.M. in September 1937, was approved by the sectional committee and has been submitted to the ASA for approval.

The Special Committee appointed in 1935 to harmonize the differences in the several specifications for rubber insulating tape (developed by the American Society for Testing Materials, the Federal Specifications Board, and the Association of American Railroads) recommended that the A.S.T.M. Tentative Specifications and Tests for Rubber Insulating Tape (D 119-35 T) be submitted to the ASA for approval. The sectional committee approved this recommendation and the specifications were submitted to the ASA in October.

The sectional committee is now balloting on the question of referring the following A.S.T.M. standards to the ASA:

Tentative Specifications and Tests for Friction Tape for General Use for Electrical Purposes (D 69-36 T)

Standard General Methods of Testing and Tolerances for Cotton Yarns and Threads (D 180-37)

Standard Methods of Testing and Tolerances for Tubular Sleeving and Braids (D 354-36)

A revision of the American Standard Methods of Test for Resistivity of Insulating Materials (C59.3-1935; A.S.T.M. D 257-33) was accepted for publication as tentative by the A.S.T.M. in June. The revision is in the form of new Tentative Methods of Test for Insulation Resistance of Electrical Insulating Materials (A.S.T.M. D 257-37 T) and is to replace the present standard methods when it is finally adopted. A Reviewing Committee of the sectional committee has been appointed to determine whether the tentative methods, when adopted, would be acceptable for submittal to the ASA for approval as American Standard.

On instructions from the sectional committee, the officers of the committee have asked the American Institute of Electrical Engineers whether a classification of the temperature limitations of insulating materials should be attempted to apply more generally than AIEE Standard No. 1, which was last revised in 1925.

The committee's officers have also written to the chairman of the Sectional Committee on Insulators for Electric Power Lines (C29) to inquire whether committee C59 would be encroaching on the field of committee C29 if it would undertake work on the testing of porcelain insulators, using the entire insulator as a sample for determining the properties of the porcelain. The chairman of committee C29 replied that in 1935 the committee undertook to bring the standard insulator tests up-to-date, and the subcommittees appointed are making progress on the revisions.

Sectional committee C59 plans to hold its next meeting in March, 1938 at the time of the meeting of Committee D-9 on Electrical Insulating Materials of the American Society for Testing Materials.—*American Society for Testing Materials.*

**Vacuum Tubes for Industrial Purposes (C60)**—After studying the work of standardizing committees of such organizations as the Institute of Radio Engineers, the National Electrical Manufacturers Association, and the American Institute of Electrical Engineers, whose activities are related to the work of the committee on Vacuum Tubes, a comprehensive set of definitions and symbols were drafted for recommendation as American Standards.

Inasmuch as this part of the committee's work overlapped that of the subcommittee on Electronics of Sectional Committee C42, a joint meeting of these two committees was held to work out unified recommendations on all Vacuum Tube definitions. A report covering these joint recommendations was submitted to the Sectional Committee on Definitions of Electrical Terms (C42).

A series of Graphical Symbols and Letter Symbols were also drafted and considered jointly with the Subcommittee on Electronics of C42. Recommended standards covering these symbols, pertaining to Vacuum Tubes were sent to the Sectional Committees on Scientific and Engineering Symbols and Abbreviations (Z10) and on Graphical Symbols and Abbreviations for Use on Drawings (Z32).

Subcommittees to cover particularly (1) Dimensions and Mechanical Interchangeability and (2) Methods of Rating and Testing are being organized. This work has not been pushed forward rapidly as it is believed that it may be of advantage to study first some of the work of this character now being done by the Institute of Radio Engineers and the National Electrical Manufacturers Association.—*Dayton Ulrey, Chairman.*

**Carbon Graphite and Metal Graphite Brushes (C64)**—No suggestions for modifying or adding to the standards approved in 1936 have been received.—*National Electrical Manufacturers Association.*

**Power Operated Radio Receiving Appliances (C65)**—The Standard of Underwriters' Laboratories for Radio Receiving Appliances was approved as an American Standard in December, 1936, and Underwriters' Laboratories was designated Proprietary Sponsor.

In September, 1937, Underwriters' Laboratories submitted a number of revisions to 21 associations or groups "substantially concerned with its scope and provisions," the same list as that to which the standard was originally submitted. The vote on the revisions is not yet complete.—*Underwriters' Laboratories, Inc.*

**Soft or Annealed Copper Wire (H4-1928); Hard-Drawn Copper Wire (H14-1929); Tinned Soft or Annealed Copper Wire for Rubber Insulation (H16-1928)**—The committee on Copper and Copper Alloy Wires for Electrical Conductors (B-1) of the American

## Seven Electrical Standards Approved During 1937

American Standards in the electrical field brought up-to-date during the past year are:

National Electrical Code (C1-1937)  
Code for Protection Against Lightning (C5-1937)

Specifications for Dry Cells and Batteries (C18-1937)

New standards approved cover:

Weather-Resistant Wire & Cable, URC Type (C8.18-1936)

Specifications for Varnished Cloth Insulation for Lead-Covered or Braided Power Cables (C8.13-1937)

Relays Associated with Power Switchgear (C37.1-1937)

Automatic Stations (C37.2-1937)

Society for Testing Materials which is responsible for these specifications has considered their revision and decided that there is no reason for revising them. They still represent sound commercial practice.—*American Society for Testing Materials.*

**Wood Poles (O5)**—Plans for issuing all of the tentative specifications for wood poles as American Standards, after making any changes which experience has shown to be necessary, are progressing.

The tentative specifications now cover six kinds of poles—southern pine, Douglas fir, western and northern cedar, lodgepole pine, and chestnut. Specifications which follow the principles of these six tentative standards have been written outside of the committee for sawed redwood poles and for red pine poles to facilitate the use of the latter species.

Studies of pole use and of pole supply data have advanced far enough to indicate an over-use of some of the American Standard size poles quite out of proportion to the normal distribution of these sizes in the woods. Methods of production are at present complicated not only by this over-use factor, but also by the introduction of idealized requirements that are difficult to meet except by strict selective processes.

The effect of these and other practical engineering considerations on the satisfactory operation of the pole specifications is being studied in order that the tentative specifications can be advanced to standard as soon as practicable.—*ASA Telephone Group.*

**Illuminating Engineering Nomenclature and Photometric Standards. (Z7)**—A revision of the standard approved in 1932 will soon be submitted to the American Standards Association.



tion. The revision is being prepared by the Committee on Nomenclature and standards of the Illuminating Engineering Society with the advice of specialists outside the membership of the Society.

This project is inter-related with several others under the procedure of the American Standards Association. This IES committee serves as a sub-committee to the Sectional Committee on Electrical Definitions (C42) and the Sectional Committee on Letter Symbols and Abbreviations for Use in Science and Engineering (Z10). Arrangements have been made with these two committees to coordinate the proposed revision of the IES standard with their reports which are also being revised.—*Illuminating Engineering Society.*

## 28 Mechanical Projects Under Supervision of MSC

Organization of the Mechanical Standards Committee was finally completed during 1937, its membership including representatives of nineteen national organizations. The committee will make recommendations to the ASA Standards Council on the initiation of projects in the mechanical field, the scope and personnel of committees undertaking the work, and on approval of proposed American Standards. It will act as a coordinating agency. Twenty-eight projects have been placed under the committee's jurisdiction.

Two proposed standards were recommended to the American Standards Association by the MSC during the year, and were approved. These are:

Addendum to American Standard for Cast-Iron Long Turn Sprinkler Fittings (B16g1-1937)

Adjustable Adapters for Multiple Spindle Drilling Heads (B5.11-1937)

Officers of the Mechanical Standards Committee are: Alfred Iddles, American Society of Mechanical Engineers, *chairman*; F. H. Morehead, Manufacturers Standardization Society of the Valve and Fittings Industry, *vice-chairman*; John Gaillard, American Standards Association, *secretary*.

## Revised Coal Classifications Add Size Designations

Revisions to clarify the text of the American Tentative Standards on Classifications of Coals by Grade and by Rank and to advance them to American Standard have been approved by the American Standards Association.

The Classification of Coals by Grade was completely rewritten to include size designations, de-

termined in accordance with a tentative method of the American Society for Testing Materials (A.S.T.M. D 431-36 T) recently developed.

The only revision in the Classification of Coals by Rank was the insertion of a clarifying footnote indicating that the provisions of the standard are not applicable to a few coals which have unusual physical or chemical properties and which come within the limits of fixed carbon or Btu of the high volatile bituminous and sub-bituminous ranks.

Following action by the sectional committee, the American Society for Testing Materials, administrative leader for this work, recommended the revisions to the ASA for approval.

Copies of the revised standards, American Standard Specifications for Classification of Coals by Rank (ASA M20.1-1937; A.S.T.M. D 388-37) and American Standard Specifications for Classification of Coals by Grade (ASA M20.2-1937; A.S.T.M. D 389-37) are available from the American Standards Association at 25 cents each. ASA Members are entitled to 20 per cent discount on all copies purchased through the ASA office.

## Motor Bus Operators Appoint Caesar on Standards Council

The National Association of Motor Bus Operators has appointed O. S. Caesar, president of the Greyhound Management Company, as its representative on the Standards Council of the American Standards Association. Mr. Caesar's alternate will be W. A. Duvall, manager of maintenance, Greyhound Management Company, Cleveland, Ohio.

The National Association of Motor Bus Operators is a Member-Body of the ASA.

## Correction on Statement Showing Relation Between Electrical Units

An error in the article "Research to Determine Exact Value of Electrical Units" on page 302 of our November issue makes the information concerning the relations between the International electrical units and the absolute units unintelligible. The statement gave an estimate of the ratios existing between the present International units and the corresponding absolute units, carried to five decimal places, and should have read:

1 Mean International Ohm = 1.00048 Absolute Ohms  
1 Mean International Volt = 1.00036 Absolute Volts

In the original statement the first line was repeated and the information about the volt was omitted.

## Manufacturers' Requirements Result In Changes in Trolley Wire Tolerances

by

**J. A. Capp<sup>1</sup>**

*Chairman, A.S.T.M. Committee B-1 on Copper and Copper Alloy Wires for Electrical Conductors*

Because manufacturers of trolley wire found it impossible to hold dimensions of grooved wire to the limits specified in the American Standard specifications for trolley wire, a revised edition of these standards was approved recently by the American Standards Association. The tolerances provided for in the new standards agree with the limits which manufacturers have found practical.

When the standard specifications for grooved trolley wire were adopted by the American Society for Testing Materials some years ago, tolerances were not included. As a result, different tolerances were adopted by different manufacturers, these differences causing the railroads considerable trouble with their line material. The standard was revised in 1936, the A.S.T.M. co-operating with the Association of American Railroads and the American Transit Engineering As-

sociation, to include tolerances on the dimensions already specified. The revised standards, agreed upon by the organizations concerned, were approved by the American Standards Association.

Difficulties encountered by manufacturers in keeping the lower lobe of the grooved wire within the tolerances specified, however, brought about an agreement this year to change the tolerances. The revision has just been approved by the American Standards Association.

The new tolerances, which cover the width of the lower lobe only, are:

Wire Size (Circular Mils)	Former Tolerance	Revised Tolerance
133,200 (00)	+0.007	+0.006 -0.012
168,100 (000)	±0.008	+0.006 -0.012
211,600 (0000)	±0.009	+0.006 -0.012
300,000	±0.011	+0.010 -0.020
350,000	±0.012	+0.010 -0.020

Copies of the American Standard Specifications for Bronze Trolley Wire (H22.1-1937; A.S.T.M. B9-37) and for Copper Trolley Wire (H22.2-1937; A.S.T.M. B47-37) are available from the American Standards Association at 25 cents each.

<sup>1</sup>General Electric Company, Schenectady, N. Y.

## Australian Draft Code Provides Safety for Air-Lock Workers

A code to assure the safety of workers in compressed air (airlocks) up to a pressure of 60 pounds per square inch has been prepared by the Standards Association of Australia and is being widely circulated.

Provisions for air-lock operation, diving, and tunnelling operations include requirements for supervision of health, decompression, testing of equipment, and medical standards for air-lock workers. The table of decompression times for varying periods of exposure in compressed air was adopted from the Report of the Institution of Civil Engineers, London. The time for the in-

itial pressure drop to half the absolute pressure has been increased, however, and instead of two minutes, the Australian table provides that this shall be carried out at the rate of five pounds per square inch per minute. This allows a greater margin to take care of possible faulty operation of gauges. Additions have also been made in the table to cover a 1½ hour working period and the decompression times necessary for the shorter working periods at pressures between 50 and 60 pounds per square inch.

Comments on the proposed code will be welcomed by the Standards Association of Australia until January 31, 1938. A copy of the draft may be borrowed from the American Standards Association Library.

## ASA to Help Direct Policies of International Standards Association

**T**HE American Standards Association will accept the invitation of the International Standards Association to name a representative on the ISA Executive Committee, the ASA Board of Directors voted at the annual meeting, December 1.

P. G. Agnew, secretary of the ASA, has been selected to act as the ASA representative, the Board announced.

Twenty of the 26 national standardizing bodies similar to the American Standards Association are members of the international organization, carrying into the international field the same correlating and coordinating functions they themselves perform for national standards. The International Standards Association is the international clearing house for all national standards except those in the electrical field. In this field, the International Electrotechnical Commission<sup>1</sup> performs the same function.

Organized in New York in 1926, the International Standards Association was set up to systematize international cooperation in standardization work and to make recommendations to the national organizations for acceptance as the basis of their own standards. In this way standards in different countries can be unified and coordinated.

### 43 ISA Projects

Forty-three international projects are now under way under the auspices of the International Standards Association. Technical committees of the American Standards Association are cooperating on 12 of these.

Two have already been outstandingly successful. As the result of the international work, ball bearings have similar dimensions throughout the world and can be easily interchanged in any country.

The same is true of the international project

on 16-millimeter sound film. Until an international committee took up the problem, two divergent standards for 16-mm film were being used. Special equipment was necessary in order that films made to one standard could be used with projection machines designed according to the other. As the result of the international agreement, accepted by the standardizing bodies in the various countries concerned, 16-mm projection machines all over the world will be able to run any 16-mm film, regardless of where it was produced.

Other important problems in international practice are uniformity of screw threads, fits between cylindrical parts, tires and rims, and no-

### ISA Members Include 20 National Organizations

Twenty of the 26 national standardizing bodies are members of the International Standards Association.

Austria	Italy
Belgium	Japan
Czechoslovakia	Norway
Denmark	Poland
Finland	Rumania
France	Russia
Germany	Spain
Greece	Sweden
Holland	Switzerland
Hungary	United States of America

The British Standards Institution has indicated its intention to join the ISA in 1938. The national standardizing organizations which are not now members of the international organization are:

Australia	Great Britain
Canada	New Zealand
China	South Africa

Belgium, Finland, France, Germany, Italy, Sweden, and the United States are now represented on the Executive Council, governing body of the ISA. H. Fredriksson, of Sweden, is the ISA president.

<sup>1</sup>The United States National Committee of the IEC is almost identical in membership with the Electrical Standards Committee of the American Standards Association. J. W. McNair, electrical engineer of the ASA, is secretary of the USNC. Dr. Clayton H. Sharp, eminent electrical engineer and physicist, is president.

menclature and testing of petroleum products. On these and other problems work is now going forward.

The American Standards Association has been a member of the International Standards Association since 1929.

## A.S.T.M. Asks ASA to Approve Eight Standards for Pigments

A series of eight standard specifications and four methods of test for pigments have been submitted by the American Society for Testing Materials to the American Standards Association for approval as American Standards.

The specifications submitted with their A.S.T.M. designations are:

- Raw Linseed Oil (A.S.T.M. D 234-28)
- Boiled Linseed Oil (D 260-33)
- Bone Black (D 210-30)
- Pure Chrome Green (D 212-27)
- Chrome Oxide Green (D 263-28)
- Titanium Barium Pigment (D 382-35)
- Titanium Calcium Pigment (D 383-35)
- Titanium Dioxide (D 384-36)

The four standard methods of test cover:

- Specific Gravity of Pigments (D 153-27)
- Coarse Particles in Dry Pigments and Coarse Particles and Skins in Mixtures of Pigments and Vehicles (D 183-37)
- Routine Analysis of Titanium Pigments (D 186-37)
- Routine Analysis of Yellow, Orange, Red, and Brown Pigments Containing Iron and Manganese (D 50-36)

These A.S.T.M. standards were submitted under the new procedure for existing standards and the American Society for Testing Materials has asked to be given responsibility for future, revisions as proprietary sponsor.

## Laboratories Form An Association

Representatives of twenty of the principal commercial laboratories of the country, at a meeting in Chicago recently, completed the organization of the American Council of Commercial Laboratories. One of the purposes of the Council will be the promotion of the proper use of scientific testing methods for the protection and certification of quality in advertised goods.

In behalf of the Council it is stated that the members have been and will be carefully selected to include only organizations to which producers, retailers, and consumers may look for unbiased

## American Industry Cooperates On International Committees

Committees working on similar projects under the procedure of the American Standards Association are taking an active part in the International Standards Association's technical committees on:

- Acoustics
- Ball and roller bearings
- Cinematography
- Coal
- Petroleum Products
- Photography
- Preferred numbers
- Sieves

American industry is also cooperating through the American Standards Association on the following international committees:

- Conversion tables (preferred numbers)
- Flow measurement
- Paints
- Refractory materials
- Steel and iron
- Tires, rims, and tire valves
- Upholstery materials

determinations of quality. Engaging in research and testing for fees these independent laboratories ascertain and report facts for clients and are uninfluenced by any ulterior consideration.

Laboratories which are adjuncts of other enterprises, or which are not self-supporting, or which, for any reason are not independent are ineligible for membership in this council.

The following officers and members of an executive committee were elected to serve during 1938:

Preston S. Millar, Electrical Testing Laboratories, New York, N. Y., *president*.

Monroe L. Patzig, Patzig Testing Laboratories, Des Moines, Iowa, *vice-president*.

D. E. Douty, United States Testing Company, Hoboken, N. J., *secretary*.

A. R. Ellis, Pittsburgh Testing Laboratories, Pittsburgh, Pa., *treasurer*.

James H. Herron, The James H. Herron Company, Cleveland, Ohio; F. B. Porter, Southwestern Laboratories, Fort Worth, Texas; and T. A. Wright, Lucius Pitkin Inc., New York, N. Y., are members of the Executive Committee.

The American Council of Commercial Laboratories is taking part in the national standardization program of the American Standards Association. It has just become an Associate Member of the ASA.



## Standard Signs Would Decrease Accidents, Safety Council Says, Asks ASA For Project

Standard signs to warn of danger would help to eliminate some of the accidental injuries received by both workmen and public due to their own unsafe acts, the National Safety Council indicated recently when it requested the American Standards Association to organize a project for standardization of accident-prevention signs. Such signs have been in wide use for many years, showing they are definitely needed in any effective accident-prevention program, the Council said. Approximately 85 per cent of all accidental injuries can be traced to unsafe acts of persons rather than mechanical or physical hazards, accident statistics show.

The proposal is for a standard design and color scheme for each sign so that the danger to which it calls attention will be quickly grasped.

Standardization in wording, location, size, color, construction, mounting and maintenance are suggested.

"It will be found in looking over signs placed on the market by various manufacturers," the

National Safety Council says, "that there is a great variety in color schemes and designs warning against similar types of hazards. Obviously, this practice cannot produce the best results. The public, going from one location to another, or employees changing their places of employment, are very likely to become confused by different types of signs warning against the same kind of hazard. For maximum safety, persons should react to signs automatically rather than find it necessary to stop, read, and analyze the meaning of each particular warning.

"In view of these needs, it seems important and in fact necessary that standards should be developed which would deal with the features of sign design, manufacture, etc., as they relate to safety and efficiency in warning of hazardous conditions."

The question of setting up such a project is being considered by the Standards Council of the American Standards Association.

## SAE Asks Industry To Protect Standard Numbers for Steel

The Society of Automotive Engineers has appealed to industry to avoid the use of numbers for designating new steel compositions which might conflict with the system of numbering used by the SAE.

The system of numbering adopted by the Society many years ago for designating SAE Standard steel compositions is generally recognized and widely used throughout the automotive and associated industries as well as other industries that are steel consumers, says the *SAE Journal*, September. These numbers denote specific compositions that have been officially approved and adopted by the SAE and have been made available to the steel producing and using industries.

"With the development of this almost universal recognition and use of SAE steels and their designating numbers, instances have arisen from time to time of the unauthorized use of the numbering system for compositions that are not included in SAE specifications," the *SAE Journal* explains. "In some instances these numbers are used without a prefix but in some instances the prefix 'SAE' has been a part of the designation. . . .

"The Society is not, of course, in a position to take action towards prohibiting such unauthor-

ized use of the numbering system but it calls attention to the impropriety of doing so.

"One of the reasons for this is that old steel compositions go out of use and new compositions are adopted as the industries progress, the cycle of such changes being from three to five years. The unauthorized use of a number for a steel of some special composition other than those included in the SAE Standard would tend to more or less permanently identify that special composition with that number.

"Eventually the Society might adopt a composition perhaps similar to the special one already introduced but would find itself prevented from using the proper number officially because of its prior use unofficially. This would not only handicap the Society in periodically keeping its specifications thoroughly up to date and consistent with the numbering system but would lead to considerable confusion throughout the industries.

"SAE steel specifications are probably the most widely known and used of all the SAE Standards and accordingly it is of real importance that practices be avoided which would either handicap the Society in keeping these specifications up to date periodically or which would result in general confusion through the unauthorized application of the numbering system or numbers to non-standard compositions."

# Develop Chemical Standards To Improve Electroplating—

*Chemical Engineer Suggests*

**T**HE American Standards Association might well serve as a liaison agency in developing standard specifications and methods of test for chemicals used in electroplating, M. W. Schwarz, Consulting Chemical Engineer, New York, suggests in the October issue of *Metal Industry*.

Standards for these chemicals are necessary because plated coatings are being required to meet definite standards but little attention has been given to standards for the chemicals used in the plating, he says. Without such standards a plater must deliver a better product with no improvement in tools.

"By demanding chemicals that conform to def-

inite standards, the plater can obtain more uniformly satisfactory production," Mr. Schwarz explains. "Another advantage of equal importance is the fact that the purchasing agent can procure materials of suitable quality at minimum prices. When the electroplating industry becomes generally informed of these advantages, standard specifications will be used almost universally. In the meantime, the more progressive and far-sighted individual manufacturers will establish their own specifications.

"The practicability of specifications for chemicals used in other fields has been proven. Physicians and pharmacists employ U.S.P. (United States Pharmacopoeia) and N.F. (National Form-

## Standards for Chemicals Would Be Boon To Trade

"The question [Specifications for Electroplating Chemicals] has, of course, occurred to many of the forward-looking leaders of the electroplating industry and it has been discussed at various times, but only in the most tentative fashion. Obviously, the problem is not only great in extent but also extremely complicated. There are so many varieties of chemicals; there are so many grades and classes of work being done; there is so little accurate factual information on the effects of minute quantities of impurities on all of the different electroplates used in commercial manufacturing work.

"Nevertheless, the subject of specifications for chemicals will not down.

With specifications for electroplated work gaining wider and wider acceptance, with new specifications coming into being; in other words, with the plater being held to rigid standards, he may insist that the quality of his tools be assured.

"Standards for chemicals would be a boon to the best elements in the supply trade. It is common knowledge that they are very much higher in quality than ever before. We know also, for example, that chromium plating demands C.P. chromic acid in order to operate at all. How much improvement in plated work would be effected in plating by *uniformity* of supplies, bringing them all up to the level of the best, is a question which no one can answer exactly, but it is certainly thought-provoking."—*Editorial, Metal Industry, October.*

ulary) grades. For analytical purposes the chemist uses A.R.—A.C.S. (Analytical Reagent—American Chemical Society specifications) grade. The rayon industry, although much younger than the electroplating industry, has its own specifications for raw materials, and other trades have standards designed to meet their particular needs.

"In the electroplating field, some manufacturers and dealers in chemicals offer products which are definitely suited for this application. While many of these chemicals conform to the producer's own specifications, universal standards for the electroplating industry are lacking. The foreman plater, in general, limits his choice to either 'technical' or 'C.P.' grades of chemicals. These terms, however, are both somewhat indefinite; technical grades of a chemical from different sources frequently differ greatly in quality, and C.P. often signifies nothing more than a grade intermediate between U.S.P. and A.R.

"This method of selecting chemicals would

seem to be particularly inadequate, when the plated coating is intended to serve chiefly as a protection against corrosion, as small amounts of impurities affect the value of these coatings adversely.

"There is apparently no valid reason why chemicals could not be purchased for the electroplater on definite specifications. If this procedure has presented difficulties in the past, the probable explanation is that the proper approach to the problem was not made."

Mr. Schwarz suggests that as a first step in a program for the general adoption of specifications, a survey should be made of all standards of this nature in the United States and in other countries. These specifications could then be modified or correlated and additional needed specifications prepared to meet the requirements of both the electroplaters and the chemical manufacturers and dealers. Then, standard methods of analysis and test would be required to determine whether products conformed to the specifications.

## French Electrical Standards Available from ASA Office

New French standards in the electrical field have just been received by the ASA Library. All of these are the 1937 official publications of the Union des Syndicats de L'Electricite. The standards cover the following subjects:

- Standard voltages below 100 volts (C-21)
- Purchase specifications for insulating varnishes with oil base and with synthetic resin base (C-27)
- Specifications for rubber insulated cables (C-30)
- Specifications for component parts of conduits used in first class installations; part one, wood moulding (C-38)
- Methods of test for molded insulating materials (C-46)
- Safety rules for radio apparatus and amplifiers connected with power distribution networks (C-49)
- Purchase specifications for insulating cardboard, thickness 0.1 to 1 mm and of same quality as "presspahn" (C-51)
- Purchase specifications for varnished cloth insulation (C-52)
- Purchase specifications for pressed mica board except boards intended to support heating elements (C-53)
- Standards for lamp bases and sockets (C-56)
- Rules for protective grounding (C-307)
- Graphical symbols for interior electrical installations (C-309)

The text of all of these standards and specifications is entirely in French.

Copies of the publications may be borrowed by anyone interested or orders may be placed for

the purchase of copies at cost, through the ASA office. It will require about six weeks to fill orders.

## National Bureau of Standards Issues Information on Water-Tightness

Technical Information on Building Materials No. 55, giving information on water-tightness of expansion joint materials in concrete roof construction, was issued by the National Bureau of Standards November 1.

The information was obtained from tests on 36 proprietary joint fillers, representative of 13 types of plastic and metal expansion joint materials as applied to the problems of concrete roof and parapet construction. The tests included accelerated weathering; low temperature; high temperature; cycles of low temperature, soaking in water, and high temperature; and outdoor exposure. Special forms of sheet metal joints were tested for resistance to cycles of compression and tension only; that is, fatigue.

The plastic materials investigated included rubber latex; pre-molded types (sponge rubber, etc.); bitumens; plastic bitumens; rubber in flux; and oil mastics.

Copies are available from the Division of Codes and Specifications, National Bureau of Standards, Washington, D. C.



## Railroads Show Special Interest In Mechanical and Electrical Standards

**R**EPORTS of the Committees on Standardization and on Electricity of the American Railway Engineering Association are published in the October issue of the A.R.E.A. *Bulletin*.

Action is being taken to submit the A.R.E.A. Specifications for the Manufacture and Installation of Motor Truck, Built-In, Self-Contained, and Portable Scales for Railway Service, and the Specifications for the Manufacture and Installation of Four-Section Railway Track Scales to the American Standards Association for approval, according to the Standardization Committee's report.

Many representatives of the Association of American Railroads are working on ASA committees and much of the work of the American Standards Association is of interest to the railroads. Especially mentioned in the report are the American Standards for Large Rivets, the work on building codes, and the National Electrical Safety Code. When adopted by municipalities, national building code provisions will greatly simplify the railroads' construction problems, it says.

The Canadian Engineering Standards Association is also doing work of interest to the American railroads, according to the Committee's report. Some of the outstanding Canadian projects

of this nature include revisions on specifications for steel highway bridges, steel railway bridges, and steel structure for buildings, revisions on the Safety Code for Passenger and Freight Elevators, projects on steel turnbuckles, logging chains, binder head screws, and color identification of piping systems. The many sections of the Canadian Electrical Code, which are continually under revision, are of special interest to the American railroads.

The A.R.E.A. Committee on Electricity reports that active study of specifications for track and third rail bonds is under way. Research on the effect of the field heat treatment of rail ends on welded bonds and the effect of the heat application of bonds to rail ends which have had heat treatment of the ends in the manufacturing process will be used in developing such specifications.

A proposed specification for bronze messenger cable for catenary construction is being submitted to the A.R.E.A. for criticism and suggestions. Revisions are also being carried out on specifications for friction tape and rubber insulating tape and on rubber insulated wires and cables.

The Electrical Committee is keeping in close touch with the electrical standards under the procedure of the American Standards Association.

### Australian Radio Standard Gives Installation and Safety Rules

The Standards Association of Australia has adopted a new radio code, in two parts: Standard rules for installation of radio apparatus, electro-acoustic apparatus and combined radio and electro-acoustic apparatus; and a standard specification for the safety requirements of these installations.

The rules cover quality of materials and apparatus, power connection, earthing aerials (exterior to buildings and within buildings), and special aerials. The safety requirements cover definitions, electrical characteristics, marking, design, and construction including protection to live parts, connection to supply mains, component apparatus and wiring, and relative tests. This part of the Code is based on the British and Canadian specifications, and the regulations of the Institution of Electrical Engineers, London.

Copies of the Code may be ordered through the American Standards Association.

### Dimensions, Quality, Tests Required In British Standard for Railway Rails

British requirements for flat bottom railway rails, including dimensions and weights, quality of steel, and methods of test, are given in a new British Standard just received by the American Standards Association.

The standard includes diagrams and tables of dimensions and weights.

Copies may be borrowed or ordered from the ASA Library.

### Australian Specifications For Obstetrical Beds

Specifications for two-piece obstetrical beds, recently issued by the Standards Association of Australia, cover essential requirements and dimensions.

Copies may be ordered through the American Standards Association Library.

## Australian Government Plans Aid to Industry Through New Standards Laboratory

The Australian Government is considering the establishment of a national standards laboratory similar to the National Bureau of Standards in the United States and the National Physical Laboratory in Great Britain. The plan was proposed by the Commonwealth Council for Scientific and Industrial Research. Such a laboratory would hold the fundamental standards of weights and measures and offer industry its services for calibrating industrial weights and measures. The equipment of the Australian laboratory, which would include standards for physical, electrical, temperature, and other measurements, would be checked periodically with those at the National Physical Laboratory of Great Britain.

Cooperation between the proposed national laboratory and the Standards Association of Australia, it is expected, would be on the same basis as that between the American Standards Association and the National Bureau of Standards. The National Bureau of Standards, a member of the ASA, is represented on many of the standards committees of the ASA and its testing facilities

and results of its technical work are frequently used by ASA committees in standardization projects.

In connection with establishment of a standards laboratory, a plan for coordinating and unifying the testing services throughout Australia is being considered. For compliance with various tests and analyses a national test certificate would be issued. Existing laboratories at universities would be used for research until new laboratories for specific branches of science could be set up.

As a first step in carrying out these plans, an Aircraft and Engine Testing and Research Laboratory is proposed. H. E. Wimperis, recently retired from the position of Director of Scientific Research to the Air Ministry, Great Britain, has been in Australia studying local conditions. He is now preparing a report for the Australian Government.

Australian manufacturers, it is reported, are strongly supporting these recommendations.

### Commercial Standard Is Basis For Labeling Wool Fabrics

A Commercial Standard for Wool and Part-Wool Fabrics (not including blankets and knit underwear) will become effective as a basis for describing and labeling new production from January 1, 1938.

The standard provides an official explanation of the significance of the terms used, permissible tolerances, and standard methods of test, to protect manufacturers, distributors, and users.

Requirements for blankets are covered by the Commercial Standard for Wool and Part-Wool Blankets, CS39-37, and for knit underwear by Trade Practice Conference Rules of the Federal Trade Commission for Knit Underwear.

Copies of the Commercial Standard for Wool and Part-Wool Fabrics, CS65-38, may be ordered from the Superintendent of Documents, Government Printing Office, Washington, D. C. Mimeographed copies, TS-2421, are now available without charge from the Division of Trade Standards, National Bureau of Standards, Washington, D. C.

### Supplement to List Of American Standards

New standards and changes in the status of old standards are shown on a supplement to the published list of American Standards, just issued. The new list supersedes all other supplements issued since publication of the original price list in March. Copies are available without charge from the American Standards Association office.

### Russian Books on Cement Available from ASA

Several Russian publications on cement have just been received from the USSR by the American Standards Association:

English-Russian Dictionary on Cement Manufacture  
Deutsch-Russisches Wörterbuch für Zementindustrie  
(German-Russian Dictionary on Cement Manufacture)

"Puzzolanic Cements," edited by V. I. Axenov and others (text in Russian, title only in English)

The books may be borrowed by ASA Members.

# What Is Your Question?

## ASA Library Answers Hundreds Monthly

THE Library of the American Standards Association was recently called upon to interpret a cable from Great Britain which asked for a quotation, by cable, on a certain number of "standards" of lumber. What did they mean by "standards?" The answer was found in British Standard 565-1934, "Terms and Definitions Applicable to Softwoods." The term "standard" was defined as 165 cubic feet.

This answer, and many others which have helped American industry to fill foreign orders quickly and accurately, was made possible because foreign national standards from 26 countries are filed by the ASA Library. Thousands of these sheets and pamphlets are made available through the Library's filing system. Many of the standards are in a foreign language, but whenever possible the title has been translated and the standards indexed by subject. Indexes issued by the national standardizing bodies in their own language help to make the standards of each country easier to find.

The ASA Library also collects and indexes standards and specifications published in the United States. These are issued by various departments of the Federal Government, states, cities, trade associations, and technical societies.

Answers to the hundreds of questions asked by Members of the American Standards Association every month are usually found in one or more of these standards. Typical questions asked and answered during the past few weeks show the wide range of subjects covered:

1. Are there any standards for core flour (foundries)?

2. Are there nationally recognized regulations for handling and storing dry ice?
3. Does Pennsylvania have state laws for bedding?
4. What is the melting point of cold cream and are there any standard methods of test for it?
5. May we borrow the British Standards for fuel oil and for fuel for oil burners?
6. May we borrow the national standards for Acme Screw Threads?
7. Are there standards to use in making a comparison of the U. S. Standard Gage and the Birmingham Gage?
8. Are there any standards covering "creep" in steel?
9. What are the British, German, and French standards for wrenches?  
(In answering this question, it was found that the word "wrench" is not shown in the British Standards. These tools are known as "spanners".)
10. Is there an American Standard for ropes for use in mines and are there any Government studies on this subject?
11. What are the standards for high-voltage cable used in Neon signs?
12. Are there Italian national standards for plugs and sockets?
13. What are the standards for automobile headlights?
14. What American Standard shows the proper cross hatching to be used on drawings to indicate mercury?
15. Are there any existing safety codes covering sand blasting operations?
16. May we borrow "all existing trade association and technical society standards for grease, lubricating oil, diesel fuel oil, and gasoline?"

Hundreds of similar reference questions are asked by Members and answered by the ASA Library every month.

### NRDGA to Study China Standards

A committee to formulate a program of merchandise standards for china and glassware was appointed recently by the china and glass group of the National Retail Dry Goods Association. The committee expects to present the plan to the midyear convention of the Association.

Standardization and reduction of tumbler sizes, the difference between liquid and coin gold china decorations, between handmade and machine glass, between lime and lead blown glass, and between china and earthenware as well as the characteristics of rock crystal and a program for stock control and prepacking charges will be discussed by this committee.



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- Free use of *Information Service and Reference Library*. The ASA is the authorized clearing-house for information about standards. It answers many thousands of questions a year, in addition to lending domestic and foreign specifications to members who sometimes need this information in filling an order or closing a bid.

“The mechanical standards included in the program of the American Standards Association are the core of industry’s mass-production processes, permeating the entire fabric of manufacture.”

—Alfred Iddles, *Vice-President, United Engineers and Constructors*

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—Howard Coonley, *President, Walworth Company*

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